

CHAPTER 4

POINT AND NONPOINT SOURCE CHARACTERIZATION OF THE LOWER TENNESSEE RIVER WATERSHED

4.1 Background.

4.2. Characterization of HUC-10 Subwatersheds

4.2.A. 0602000101 (Tennessee River)

4.2.B. 0602000102 (Big Sewee Creek)

4.2.C. 0602000103 (Richland Creek)

4.2.D. 0602000104 (Sale Creek)

4.2.E. 0602000106 (Wolftever Creek)

4.1. BACKGROUND. This chapter is organized by HUC-10 subwatershed, and the description of each subwatershed is divided into four parts:

- i. General description of the subwatershed
- ii. Description of point source contributions
- ii.a. Description of facilities discharging to water bodies listed on the 2002 303(d) list
- iii. Description of nonpoint source contributions

The Tennessee portion of the Lower Tennessee River Watershed (HUC 06020001) has been delineated into five HUC 10-digit subwatersheds.

Information for this chapter was obtained from databases maintained by the Division of Water Pollution Control or provided in the WCS (Watershed Characterization System) data set. The WCS used was version 2.0 (developed by Tetra Tech, Inc for EPA Region 4) released in 2003.

WCS integrates with ArcView® v3.x and Spatial Analyst® v1.1 to analyze user-delineated (sub)watersheds based on hydrologically connected water bodies. Reports are generated by integrating WCS with Microsoft® Word. Land Use/Land Cover information from 1992 MRLC (Multi-Resolution Land Cover) data are calculated based on the proportion of county-based land use/land cover in user-delineated (sub)watersheds. Nonpoint source data in WCS are based on agricultural census data collected 1992–1998; nonpoint source data were reviewed by Tennessee NRCS staff.

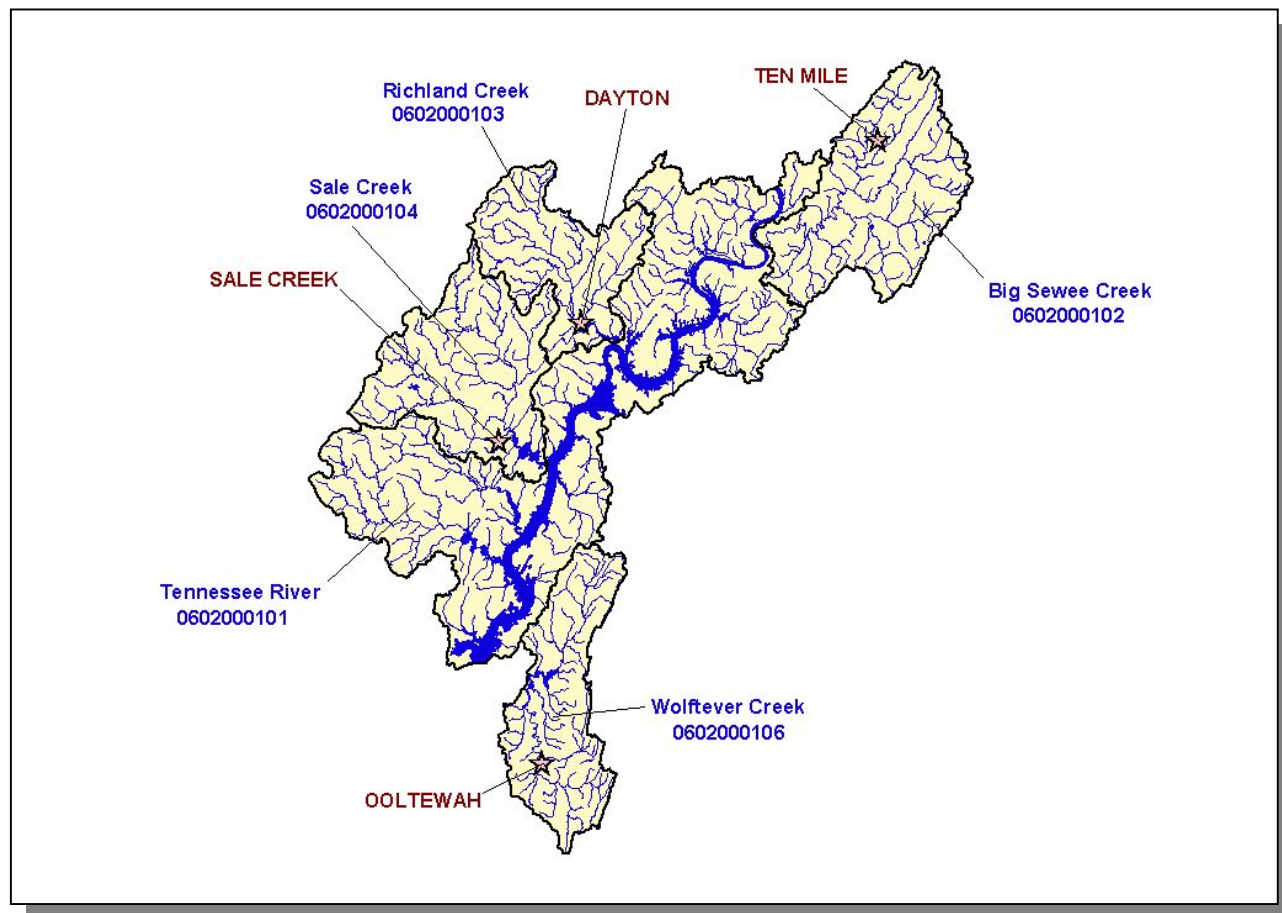


Figure 4-1. The Group 3 Portion of the Tennessee Portion of the Lower Tennessee River Watershed is Composed of Five USGS-Delineated Subwatersheds (10-Digit Subwatersheds). Locations of Dayton, Ooltewah, Sale Creek, and Ten Mile are shown for reference.

4.2. CHARACTERIZATION OF HUC-10 SUBWATERSHEDS. The Watershed Characterization System (WCS) software and data sets provided by EPA Region IV were used to characterize each subwatershed in the Group 3 portion of the Tennessee portion of the Lower Tennessee River Watershed.

| HUC-10 | HUC-12 |
|------------|--------------------------------------|
| 0602000101 | 060200010101 (Tennessee River) |
| | 060200010102 (Tennessee River) |
| | 060200010103 (Goodfield Creek) |
| | 060200010104 (Tennessee River) |
| | 060200010105 (Possum Creek) |
| | 060200010106 (Soddy Creek) |
| | 060200010107 (Tennessee River) |
| | |
| 0602000102 | 060200010201 (Big Sewee Creek) |
| | 060200010202 Little Sewee Creek) |
| | 060200010203 (Sewee Creek) |
| | |
| 0602000103 | 060200010301 (Richland Creek) |
| | 060200010302 (Little Richland Creek) |
| | |
| 0602000104 | 060200010401 (Roaring Creek) |
| | 060200010402 (Rock Creek) |
| | 060200010403 (Sale Creek) |
| | |
| 0602000106 | 060200010601 (Wolftever Creek) |
| | 060200010602(Savannah Creek) |

Table 4-1. HUC-12 Drainage Areas are Nested Within HUC-10 Drainages. NRCS worked with USGS to delineate the HUC-10 and HUC-12 drainage boundaries.

4.2.A. 0602000101 (Tennessee River).

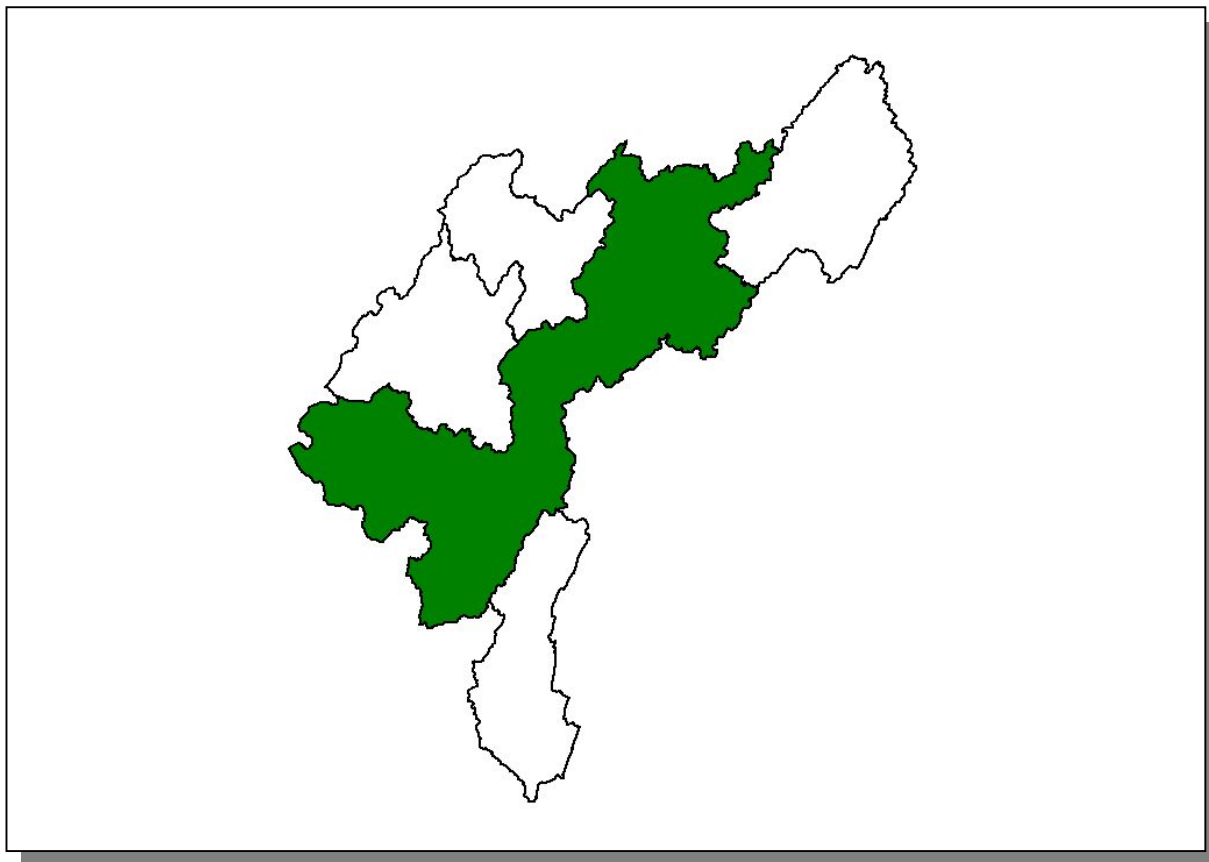


Figure 4-2. Location of Subwatershed 0602000101. All Lower Tennessee River HUC-10 subwatershed boundaries are shown for reference.

4.2.A.i. General Description.

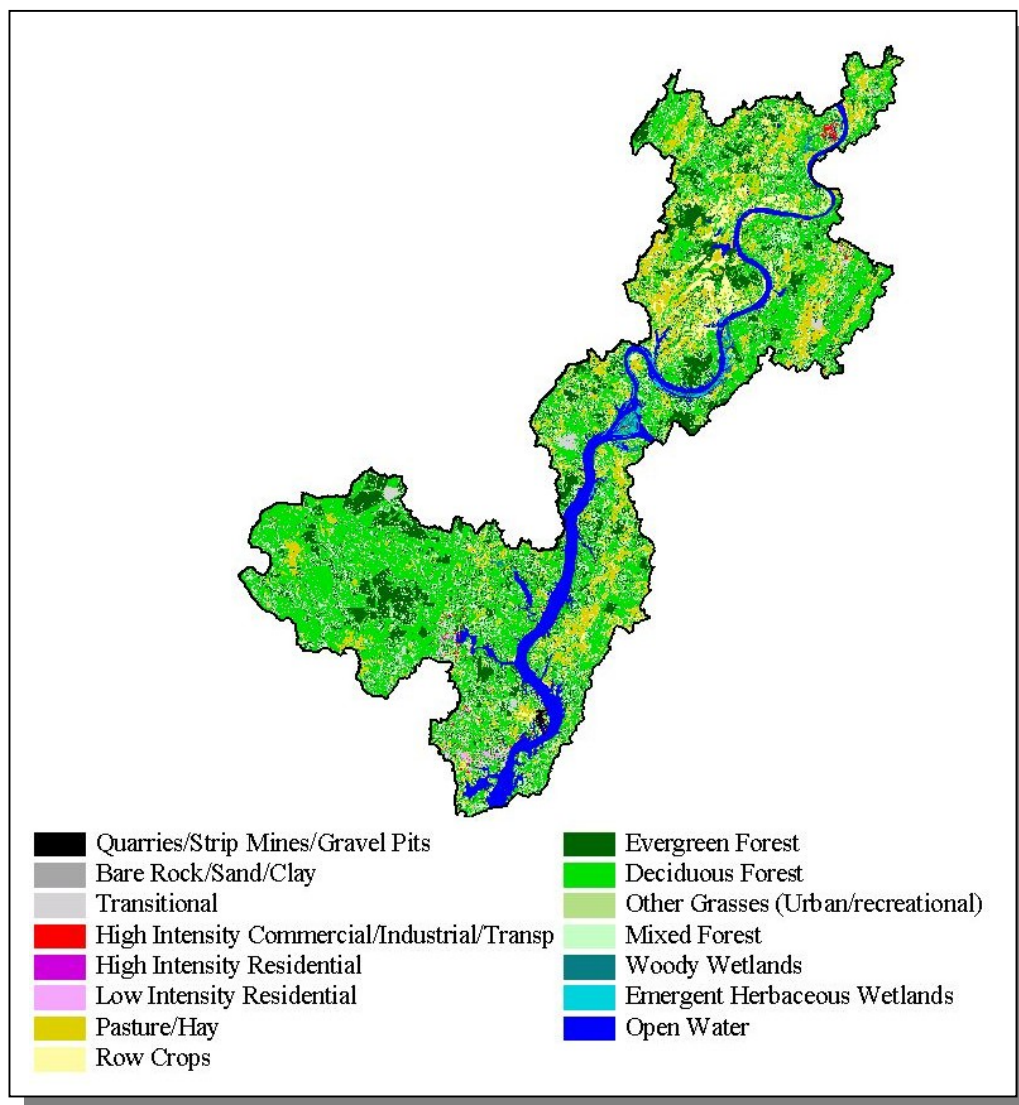


Figure 4-3. Illustration of Land Use Distribution in Subwatershed 0602000101.

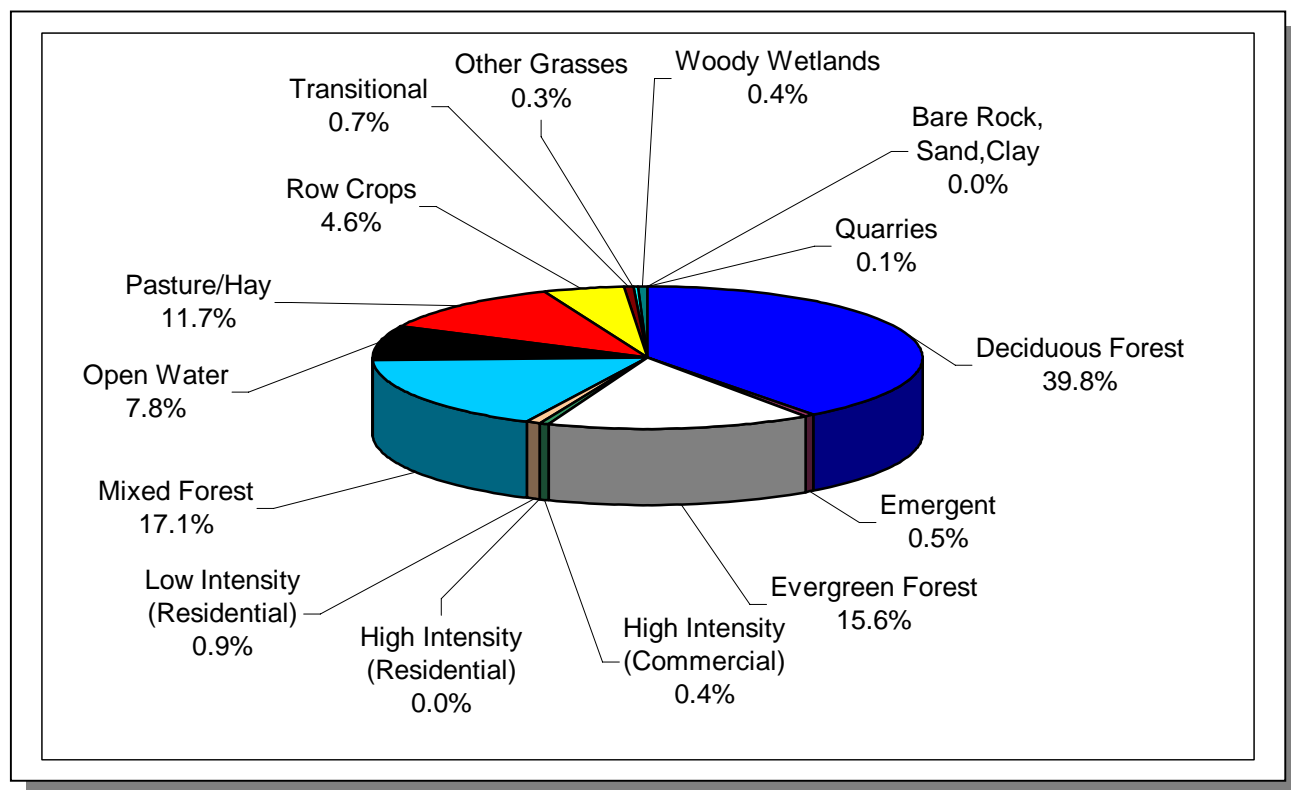


Figure 4-4. Land Use Distribution in Subwatershed 0602000101. More information is provided in Appendix IV.

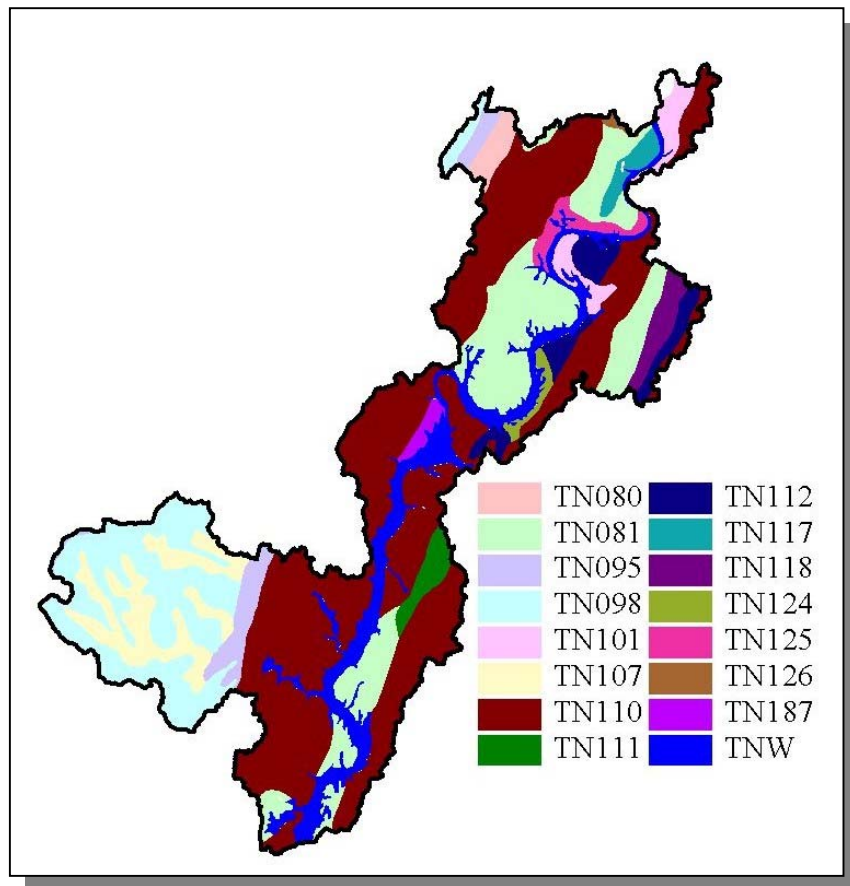


Figure 4-5. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000101.

| STATSGO MAP UNIT ID | PERCENT HYDRIC | HYDROLOGIC GROUP | PERMEABILITY (in/hour) | SOIL pH | ESTIMATED SOIL TEXTURE | SOIL ERODIBILITY |
|------------------------|-------------------|---------------------|---------------------------|------------|---------------------------|---------------------|
| TN080 | 1.00 | C | 1.38 | 5.16 | Loam | 0.35 |
| TN081 | 5.00 | C | 1.41 | 5.48 | Silty Loam | 0.35 |
| TN095 | 0.00 | B | 2.35 | 5.12 | Loam | 0.31 |
| TN098 | 1.00 | C | 3.98 | 4.82 | Loam | 0.32 |
| TN101 | 0.00 | B | 1.71 | 5.39 | Loam | 0.35 |
| TN107 | 1.00 | C | 6.34 | 4.84 | Loam | 0.28 |
| TN110 | 0.00 | B | 2.22 | 4.69 | Loam | 0.31 |
| TN111 | 0.00 | C | 1.41 | 5.10 | Loam | 0.34 |
| TN112 | 6.00 | C | 2.36 | 5.09 | Loam | 0.35 |
| TN117 | 6.00 | C | 2.06 | 5.16 | Loam | 0.37 |
| TN118 | 0.00 | C | 6.52 | 5.12 | Loam | 0.29 |
| TN124 | 0.00 | B | 1.77 | 5.33 | Loam | 0.33 |
| TN125 | 0.00 | C | 8.50 | 5.00 | Sandy Loam | 0.20 |
| TN126 | 19.00 | C | 1.30 | 5.12 | Loam | 0.33 |
| TN187 | 0.00 | B | 1.26 | 5.12 | Loam | 0.27 |

Table 4-2. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000101. More details are provided in Lower Tennessee Appendix IV.

| County | COUNTY POPULATION | | | Portion of Watershed (%) | ESTIMATED POPULATION IN WATERSHED | | | % Change (1990-1997) |
|---------------|-------------------|----------------|----------------|--------------------------|-----------------------------------|---------------|---------------|----------------------|
| | 1990 | 1997 | 2000 | | 1990 | 1997 | 2000 | |
| Bledsoe | 9,669 | 10,650 | 12,367 | 1.28 | 124 | 137 | 159 | 28.2 |
| Hamilton | 285,536 | 194,856 | 307,896 | 25.7 | 73,397 | 75,795 | 79,145 | 7.8 |
| McMinn | 42,383 | 46,000 | 49,015 | 0.02 | 7 | 7 | 8 | 143 |
| Meigs | 8,033 | 9,690 | 11,086 | 3,222 | 2,588 | 3,122 | 3,572 | 38.0 |
| Rhea | 24,344 | 27,672 | 28,400 | 28.05 | 6,829 | 7,762 | 7,966 | 16.6 |
| Sequatchie | 8,863 | 10,119 | 11,370 | 9.09 | 806 | 920 | 1,034 | 28.3 |
| Totals | 378,828 | 398,996 | 420,134 | | 83,751 | 87,743 | 91,884 | 9.7 |

Table 4-3. Population Estimates in Subwatershed 0602000101.

| | | | NUMBER OF HOUSING UNITS | | | |
|-----------------|----------|---------------|-------------------------|--------------|--------------|-----------|
| Populated Place | County | Population | Total | Public Sewer | Septic Tank | Other |
| Dayton | Rhea | 5,671 | 2,306 | 1,710 | 596 | 0 |
| Decatur | Meigs | 1,361 | 550 | 387 | 159 | 4 |
| Lakesite | Hamilton | 781 | 326 | 65 | 261 | 0 |
| Soddy-Daisy | Hamilton | 8,240 | 3,356 | 305 | 2,998 | 53 |
| Totals | | 16,053 | 6,538 | 2,467 | 4,014 | 57 |

Table 4-4. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0602000101.

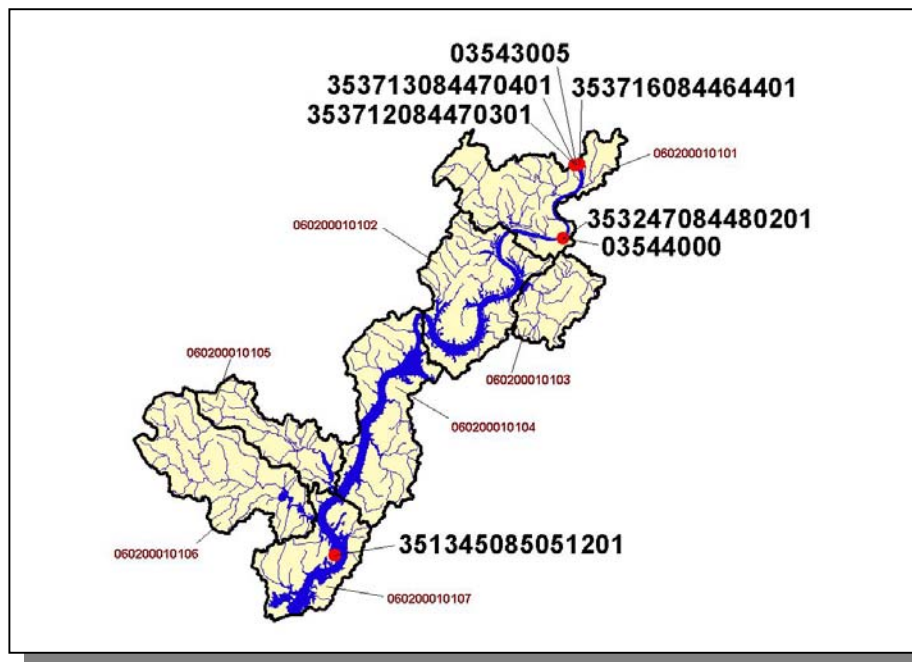


Figure 4-6. Location of Historical Streamflow Data Collection Sites in Subwatershed 0602000101. Subwatershed 060200010101, 060200010102, 060200010103, 060200010104, 060200010105, 060200010106 and 060200010107 boundaries are shown for reference. More information is provided in Appendix IV.

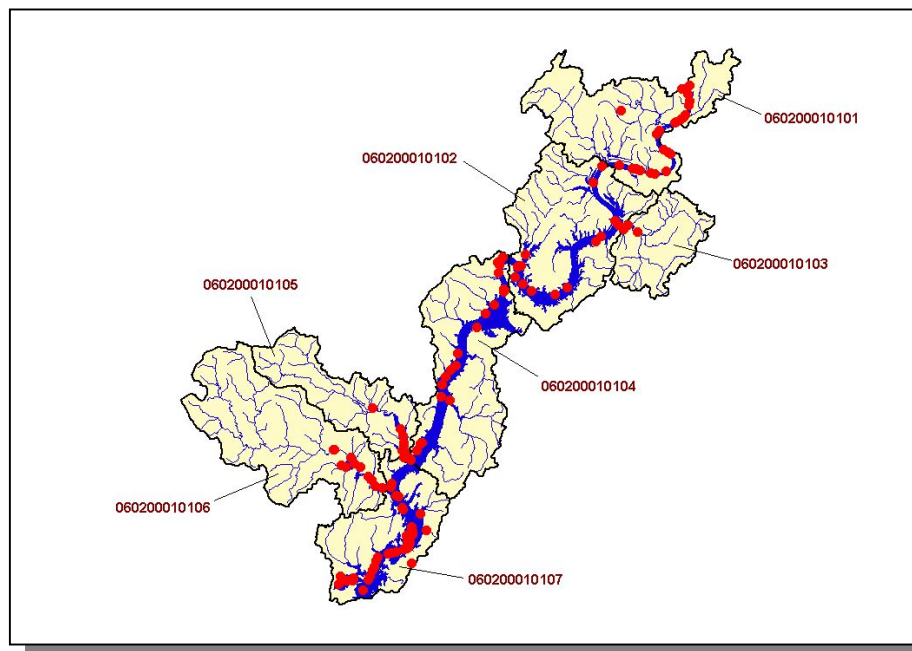


Figure 4-7. Location of STORET Monitoring Sites in Subwatershed 0602000101. Subwatershed 060200010101, 060200010102, 060200010103, 060200010104, 060200010105, 060200010106, and 060200010107 boundaries are shown for reference. More information, including site names and locations, is provided in Appendix IV.

4.2.A.ii Point Source Contributions.

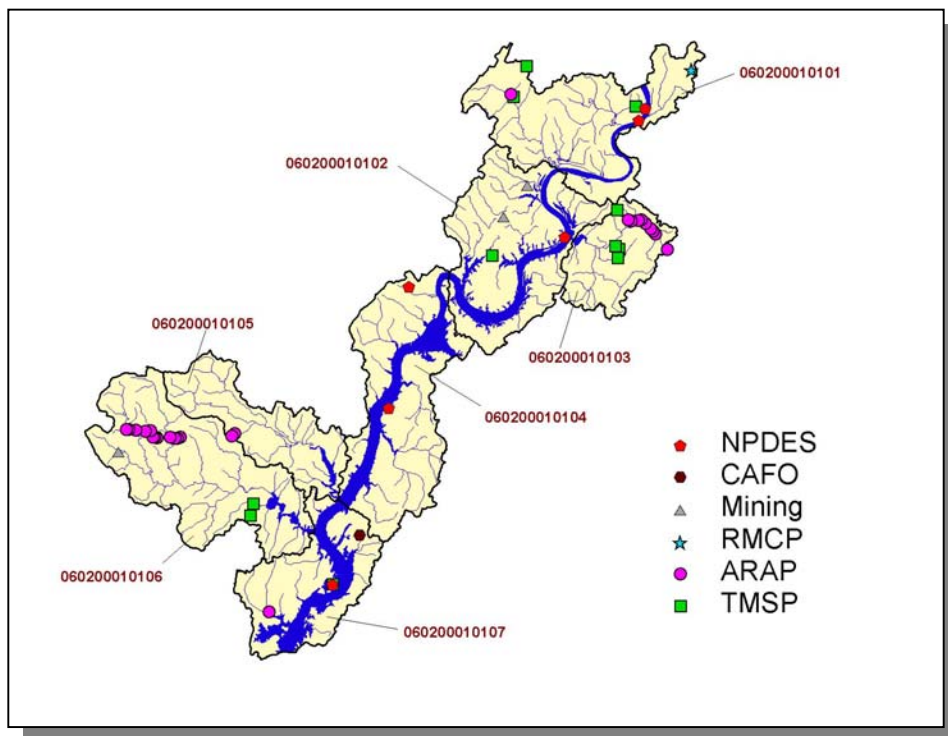


Figure 4-8. Location of Active Point Source Facilities in Subwatershed 0602000101. Subwatershed 0602000101, 0602000102, 0602000103, 0602000104, 0602000105, 0602000106, and 0602000107 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

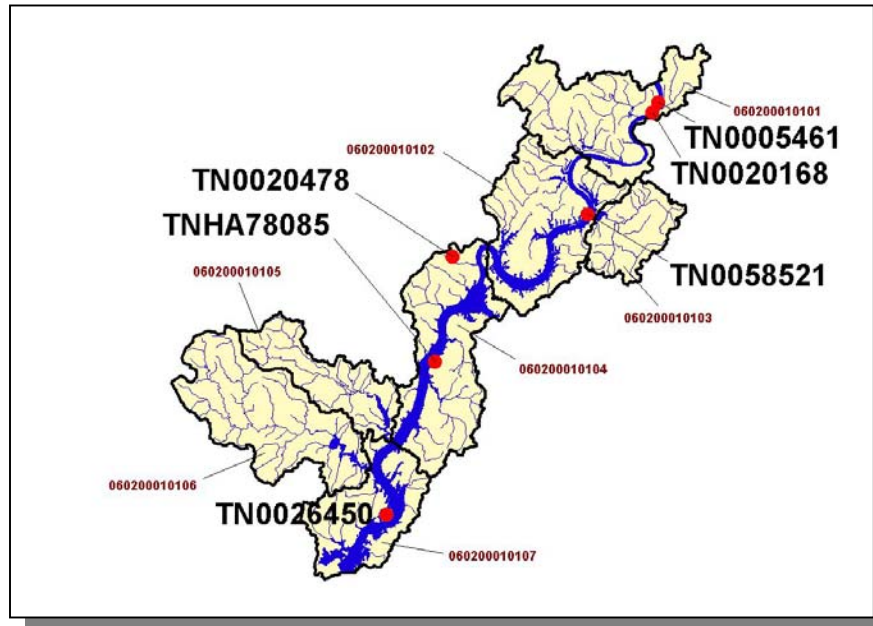


Figure 4-9. Location of NPDES Facilities in Subwatershed 0602000101. Subwatershed 060200010101, 060200010102, 060200010103, 060200010104, 060200010105, 060200010106, and 060200010107 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

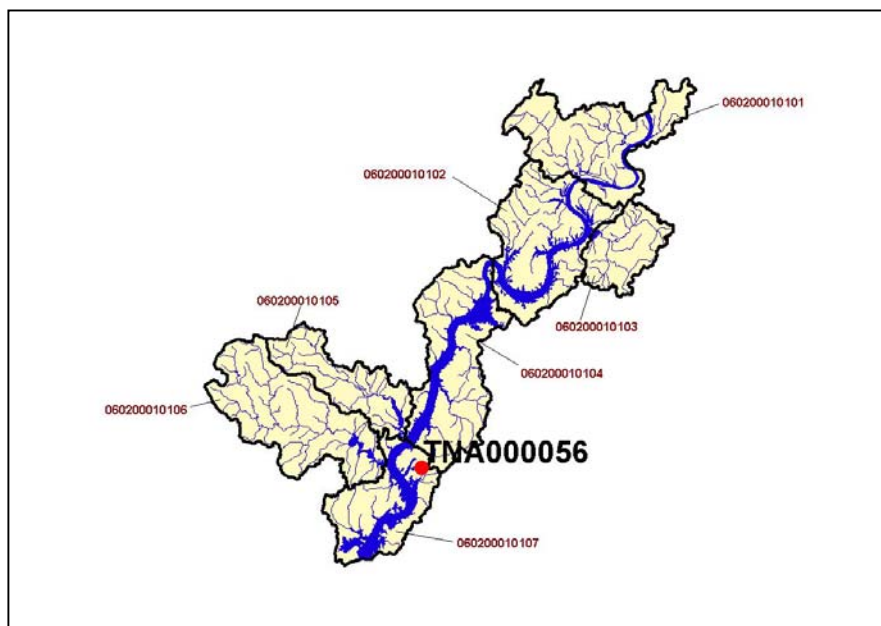


Figure 4-10. Location of Concentrated Animal Feeding Operations (CAFO) in Subwatershed 0602000101. Subwatershed 060200010101, 060200010102, 060200010103, 060200010104, 060200010105, 060200010106, and 060200010107 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

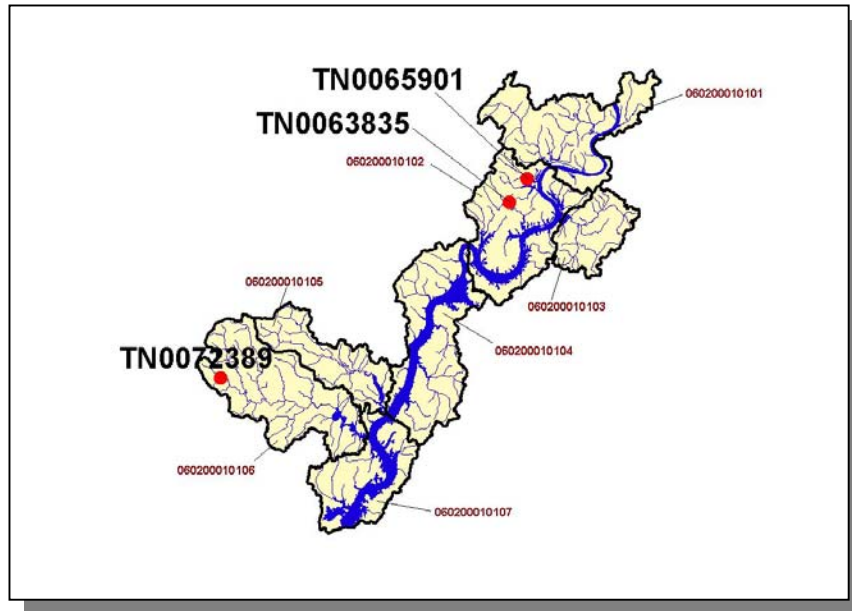


Figure 4-11. Location of Active Mining Facilities in Subwatershed 0602000101. Subwatershed 060200010101, 060200010102, 060200010103, 060200010104, 060200010105, 060200010106, and 060200010107 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

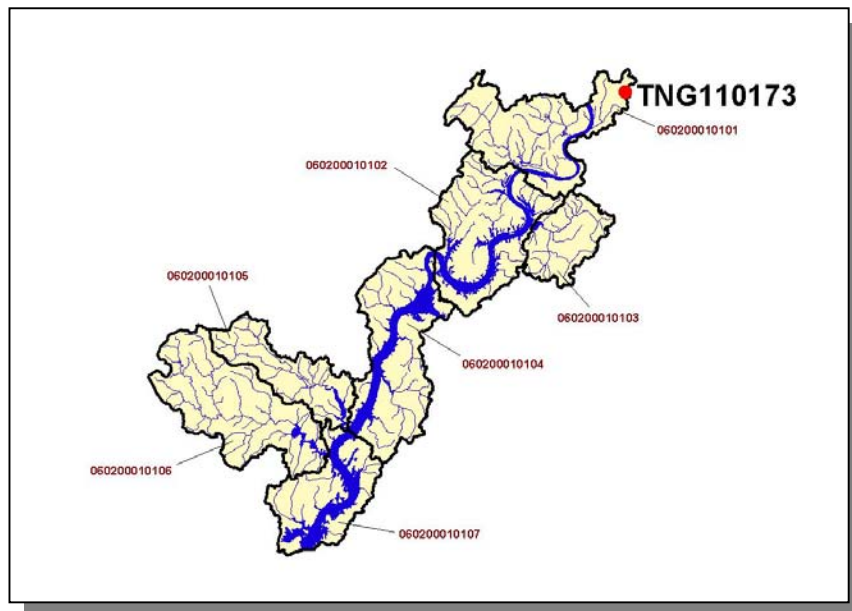


Figure 4-12. Location of Ready Mix Concrete Plants in Subwatershed 0602000101. Subwatershed 060200010101, 060200010102, 060200010103, 060200010104, 060200010105, 060200010106, and 060200010107 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

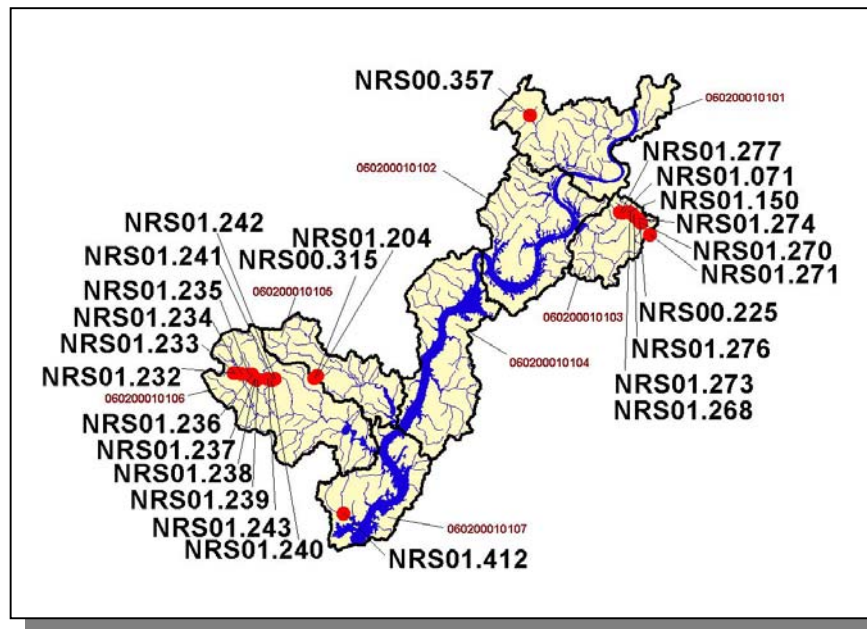


Figure 4-13. Location of ARAP Sites (Individual Permits) in Subwatershed 0602000101. Subwatershed 060200010101, 060200010102, 060200010103, 060200010104, 060200010105, 060200010106, and 060200010107 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

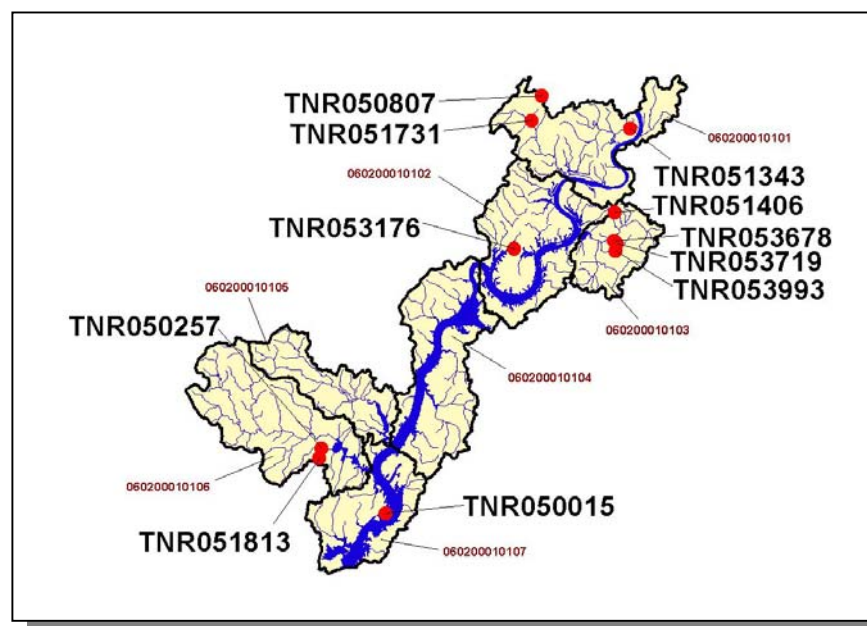


Figure 4-14. Location of TMSP Facilities in Subwatershed 0602000101. Subwatershed 060200010101, 060200010102, 060200010103, 060200010104, 060200010105, 060200010106, and 060200010107 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

4.2.A.ii.a. Dischargers to Water Bodies Listed on the 2002 303(d) List

There are two NPDES facilities discharging to water bodies listed on the 2002 303(d) list in Subwatershed 0602000101:

- TN0058521 (Decatur STP) discharges to Tennessee River @ RM 514.8
- TN0020478 (Dayton STP) discharges to Tennessee River @ RM 504

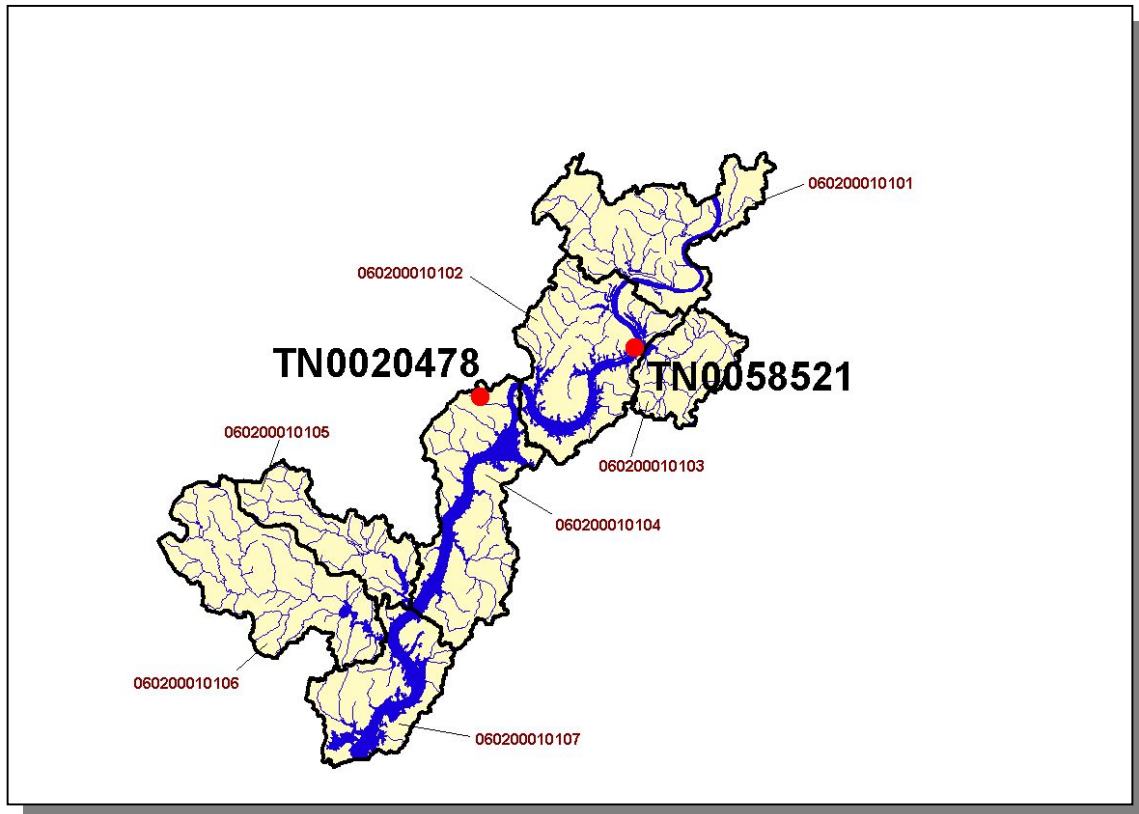


Figure 4-15. Location of NPDES Dischargers to Water Bodies Listed on the 2002 303(d) List in Subwatershed 0602000101. Subwatershed 060200010101, 060200010102, 060200010103, 060200010104, 060200010105, 060200010106, and 060200010107 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

| PERMIT # | 1Q10 | 3Q10 | 7Q10 | 3Q20 | QDESIGN |
|-----------|-------|-------|-------|-------|---------|
| TN0058521 | 3,610 | 4,340 | 4,910 | 3,680 | 0.34 |
| TN0020478 | 3,610 | 4,340 | 4,910 | 3,680 | 2.69 |

Table 4-5. Receiving Stream Flow Information for NPDES Dischargers to Waterbodies Listed on the 2002 303(d) List in Subwatershed 0602000101. Data are in million gallons per day (MGD). Data were obtained from the USGS publication Flow Duration and Low Flows of Tennessee Streams Through 1992 or from permit files.

| PERMIT # | CBOD ₅ | FECAL COLIFORM | TRC | TSS | SETTLEABLE SOLIDS | DO | pH |
|-----------|-------------------|----------------|-----|-----|-------------------|----|----|
| TN0058521 | X | X | X | X | X | X | X |
| TN0020478 | X | X | X | X | X | X | X |

Table 4-6. Parameters Monitored for Daily Maximum Limits for NPDES Dischargers to Waterbodies Listed on the 2002 303(d) List in Subwatershed 0602000101. CBOD₅, Carbonaceous Biochemical Oxygen Demand (5-Day); TRC, Total Residual Chlorine; TSS, Total Suspended Solids.

4.2.A.iii. Nonpoint Source Contributions.

| LIVESTOCK (COUNTS) | | | | | | |
|---------------------------|--------|----------|-------------------|--------------------------|------|-------|
| Beef Cow | Cattle | Milk Cow | Chickens (Layers) | Chickens (Broilers Sold) | Hogs | Sheep |
| 5,385 | 11,560 | 658 | 20 | 298,515 | 560 | 28 |

Table 4-7. Summary of Livestock Count Estimates in Subwatershed 0602000101. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

| County | INVENTORY | | REMOVAL RATE | |
|--------------|---------------------------------|---------------------------------|---------------------------------------|-----------------------------------|
| | Forest Land (thousand acres) | Timber Land (thousand acres) | Growing Stock (million cubic feet) | Sawtimber (million board feet) |
| Bledsoe | 186.2 | 186.2 | 0.9 | 2.3 |
| Hamilton | 210.7 | 210.7 | 2.2 | 6.0 |
| Meigs | 83.0 | 83.0 | 0.2 | 0.0 |
| Rhea | 126.5 | 126.4 | 1.7 | 4.7 |
| Total | 606.4 | 606.3 | 5.0 | 13.0 |

Table 4-8. Forest Acreage and Annual Removal Rates (1987-1994) in Subwatershed 0602000101.

| CROPS | TONS/ACRE/YEAR |
|---------------------------------------|-----------------------|
| Grass (Pastureland) | 0.39 |
| Legumes (Pastureland) | 0.77 |
| Grass (Hayland) | 2.02 |
| Legumes, Grass (Hayland) | 0.17 |
| Grass, Forbs, Legumes (Mixed Pasture) | 0.31 |
| Forest Land (Not Grazed) | 0.00 |
| Forest Land (Grazed) | 0.00 |
| Corn (Row Crops) | 3.67 |
| Soybeans (Row Crops) | 4.10 |
| Tobacco (Row Crops) | 5.65 |
| All Other Row Crops | 4.45 |
| Oats (Close-Grown Cropland) | 3.13 |
| Wheat (Close-Grown Cropland) | 5.15 |
| All Other Close-Grown Cropland) | 1.99 |
| Non-Agricultural Land Use | 0.00 |
| Conservation Reserve Program Lands | 1.00 |
| Other Land in Farms | 0.00 |
| Farmsteads and Ranch Headquarters | 0.20 |

Table 4-9. Annual Estimated Total Soil Loss in Subwatershed 0602000101.

4.2.B. 0602000102 (Big Sewee Creek).

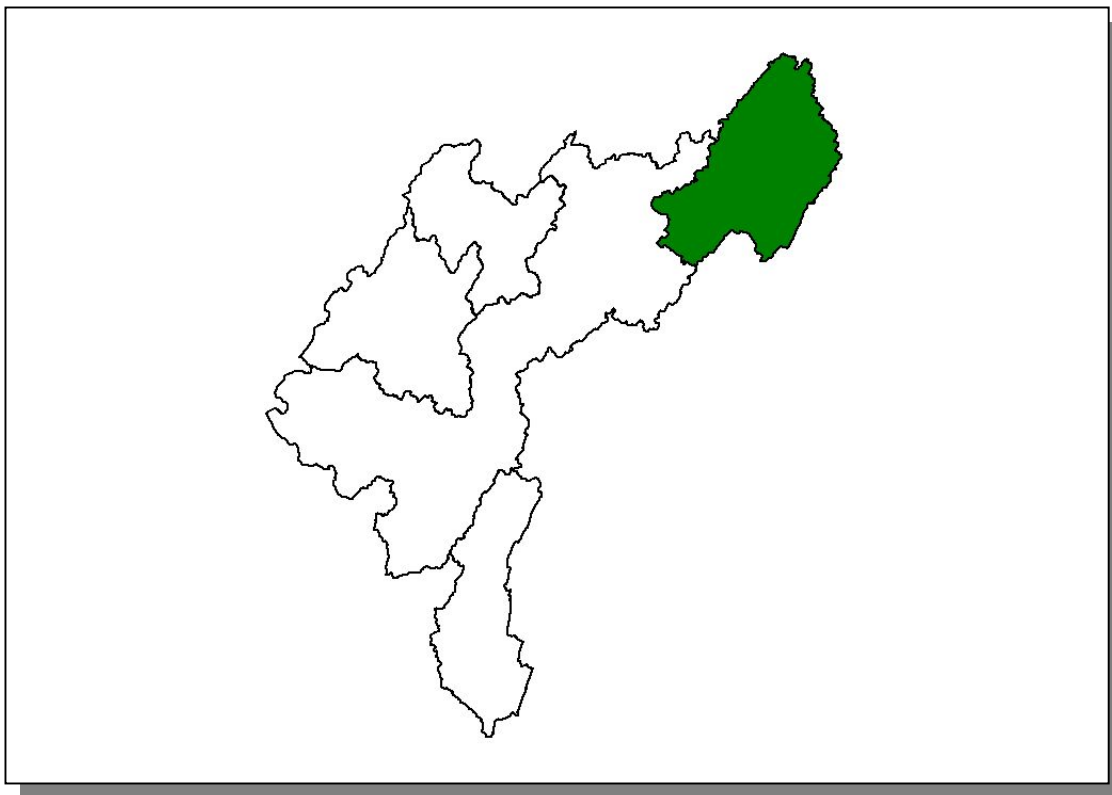


Figure 4-16. Location of Subwatershed 0602000102. All Lower Tennessee HUC-10 subwatershed boundaries are shown for reference.

4.2.B.i. General Description.

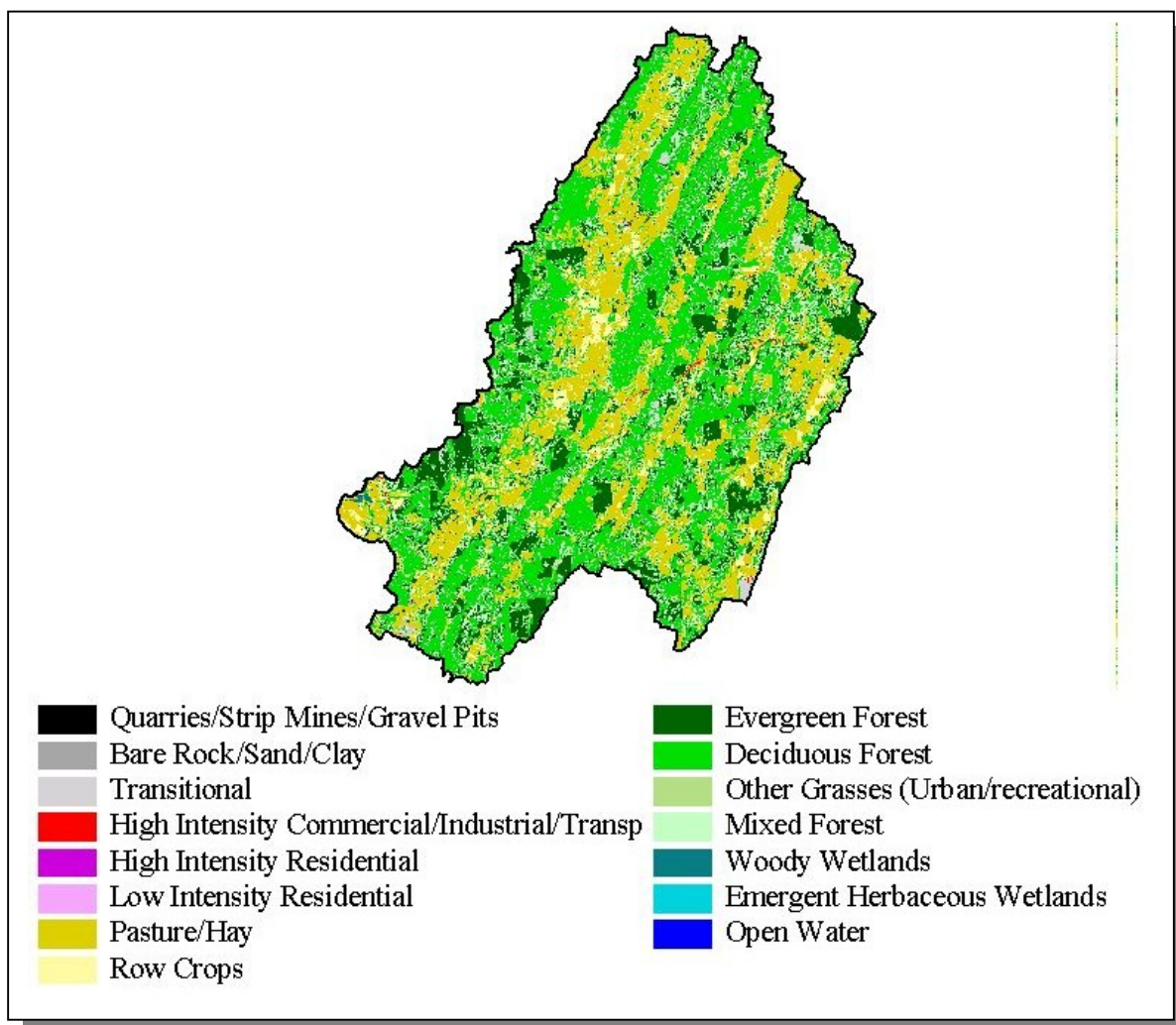


Figure 4-17. Illustration of Land Use Distribution in Subwatershed 0602000102.

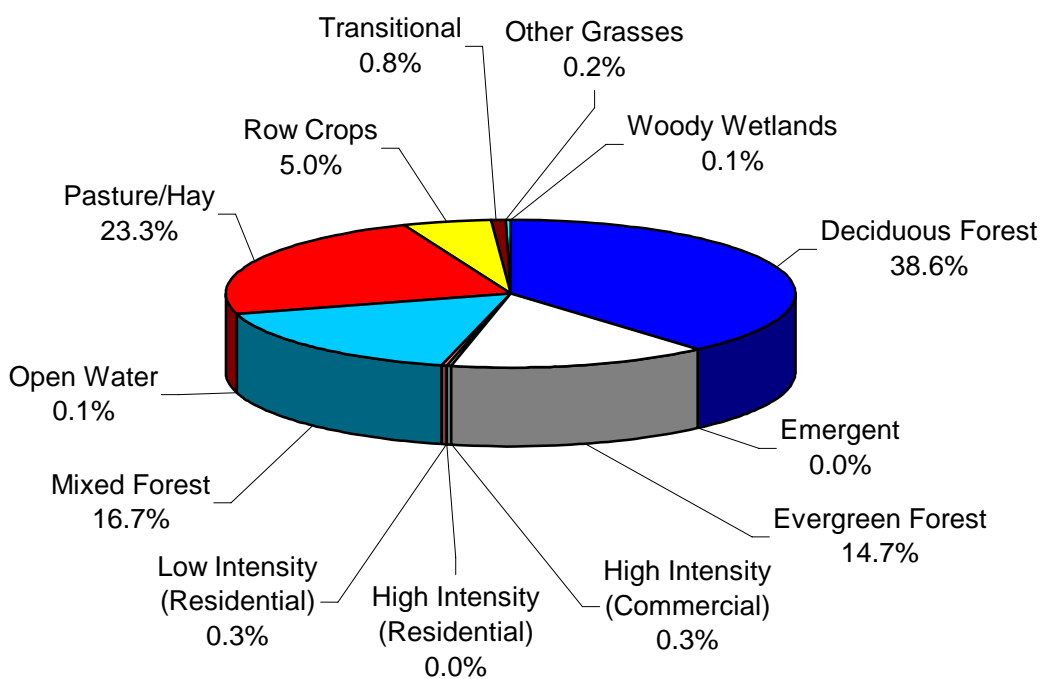


Figure 4-18. Land Use Distribution in Subwatershed 0602000102. More information is provided in Appendix IV.

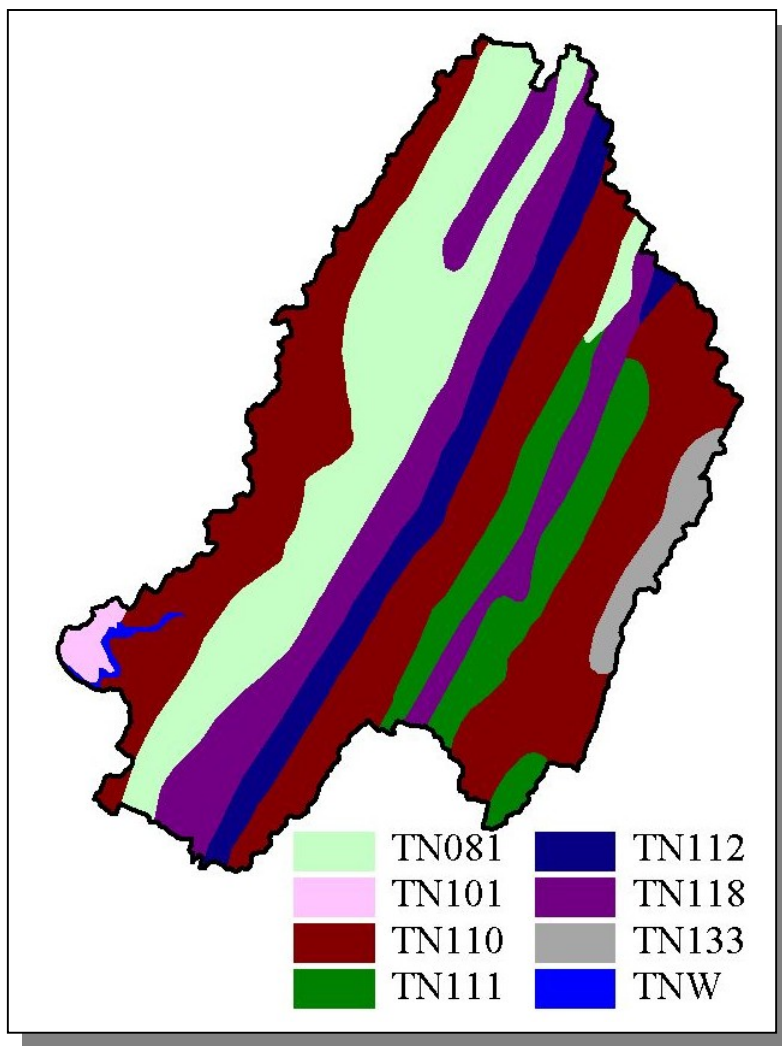


Figure 4-19. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000102.

| STATSGO MAP UNIT ID | PERCENT HYDRIC | HYDROLOGIC GROUP | PERMEABILITY (in/hour) | SOIL pH | ESTIMATED SOIL TEXTURE | SOIL ERODIBILITY |
|------------------------|-------------------|---------------------|---------------------------|------------|---------------------------|---------------------|
| TN081 | 5.00 | C | 1.41 | 5.48 | Silty Loam | 0.35 |
| TN101 | 0.00 | B | 1.71 | 5.39 | Loam | 0.35 |
| TN110 | 0.00 | B | 2.22 | 4.96 | Loam | 0.31 |
| TN111 | 0.00 | C | 1.41 | 5.10 | Loam | 0.34 |
| TN112 | 6.00 | C | 2.36 | 5.09 | Loam | 0.35 |
| TN118 | 0.00 | C | 6.52 | 5.12 | Loam | 0.29 |
| TN133 | 0.00 | C | 1.35 | 6.04 | Clayey Loam | 0.27 |

Table 4-10. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000102. More information is provided in Lower Tennessee Appendix IV.

| County | COUNTY POPULATION | | | Portion of Watershed (%) | ESTIMATED POPULATION IN WATERSHED | | | % Change (1990-1997) |
|---------------|-------------------|----------------|----------------|--------------------------|-----------------------------------|--------------|--------------|----------------------|
| | 1990 | 1997 | 2000 | | 1990 | 1997 | 2000 | |
| Loudon | 31,255 | 38,245 | 39,086 | 0.56 | 175 | 214 | 219 | 25.1 |
| McMinn | 42,383 | 46,000 | 49,015 | 9.09 | 3,854 | 4,183 | 4,457 | 15.6 |
| Meigs | 8,033 | 9,690 | 11,086 | 32.74 | 2,630 | 3,172 | 3,629 | 38.0 |
| Rhea | 24,344 | 27,672 | 28,400 | 0.15 | 36 | 41 | 43 | 19.4 |
| Roane | 47,227 | 49,885 | 51,910 | 3.09 | 1,460 | 1,543 | 1,605 | 9.9 |
| Totals | 153,242 | 171,492 | 179,497 | | 8,155 | 9,153 | 9,953 | 22.0 |

Table 4-11. Population Estimates in Subwatershed 0602000102.

| Populated Place | County | Population | NUMBER OF HOUSING UNITS | | | |
|-----------------|--------|------------|-------------------------|--------------|-------------|-------|
| | | | Total | Public Sewer | Septic Tank | Other |
| Decatur | Meigs | 1,361 | 550 | 387 | 159 | 4 |

Table 4-12. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0602000102.

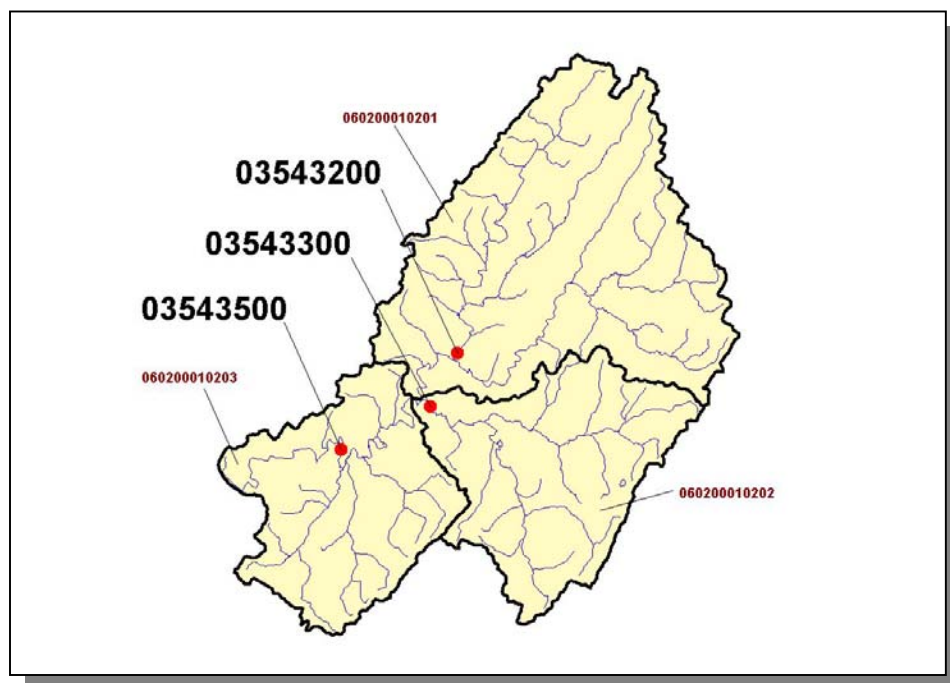


Figure 4-20. Location of Historical Streamflow Data Collection Sites in Subwatershed 0602000102. Subwatershed 060200010201, 060200010202, and 060200010203 boundaries are shown for reference. More information is provided in Appendix IV.

4.2.B.ii. Point Source Contributions.

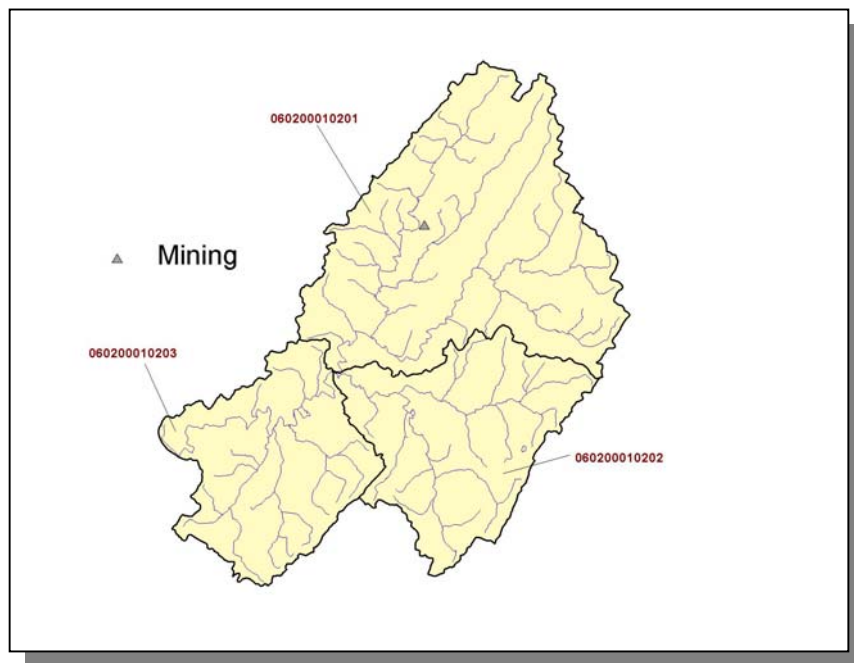


Figure 4-21. Location of Active Point Source Facilities in Subwatershed 0602000102. Subwatershed 060200010201, 060200010202, and 060200010203 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.



Figure 4-22. Location of Active Mining Facilities in Subwatershed 0602000102. Subwatershed 060200010201, 060200010202, and 060200010203 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

4.2.B.iii. Nonpoint Source Contributions.

| LIVESTOCK (COUNTS) | | | | | | |
|---------------------------|--------|----------|-------------------|--------------------------|------|-------|
| Beef Cow | Cattle | Milk Cow | Chickens (Layers) | Chickens (Broilers Sold) | Hogs | Sheep |
| 5,515 | 11,903 | 1,138 | 16 | 462,027 | 69 | 36 |

Table 4-13. Summary of Livestock Count Estimates in Subwatershed 0602000102. According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

| County | INVENTORY | | REMOVAL RATE | |
|--------------|------------------------------|------------------------------|------------------------------------|--------------------------------|
| | Forest Land (thousand acres) | Timber Land (thousand acres) | Growing Stock (million cubic feet) | Sawtimber (million board feet) |
| Loudon | 62.3 | 62.3 | 1.1 | 3.5 |
| Meigs | 83.0 | 83.0 | 0.2 | 0.0 |
| Rhea | 126.5 | 126.4 | 1.7 | 4.7 |
| Roane | 153.1 | 153.1 | 1.7 | 5.1 |
| Total | 424.9 | 424.8 | 4.7 | 13.1 |

Table 4-14. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0602000102.

| CROPS | TONS/ACRE/YEAR |
|---------------------------------------|-----------------------|
| Grass (Pastureland) | 0.47 |
| Legumes (Pastureland) | 0.23 |
| Grass (Hayland) | 0.38 |
| Legumes (Hayland) | 0.77 |
| Legumes, Grass (Hayland) | 0.18 |
| Grass, Forbs, Legumes (Mixed Pasture) | 0.36 |
| Forest Land (Not Grazed) | 0.00 |
| Forest Land (Grazed) | 0.00 |
| Corn (Row Crops) | 4.14 |
| Soybeans (Row Crops) | 4.06 |
| Tobacco (Row Crops) | 5.56 |
| Wheat (Close-Grown Cropland) | 4.31 |
| Non-Agricultural Land Use | 0.00 |
| Farmsteads and Ranch Headquarters | 0.70 |

Table 4-15. Annual Estimated Total Soil Loss in Subwatershed 0602000102.

4.2.C. 0602000103 (Richland Creek).

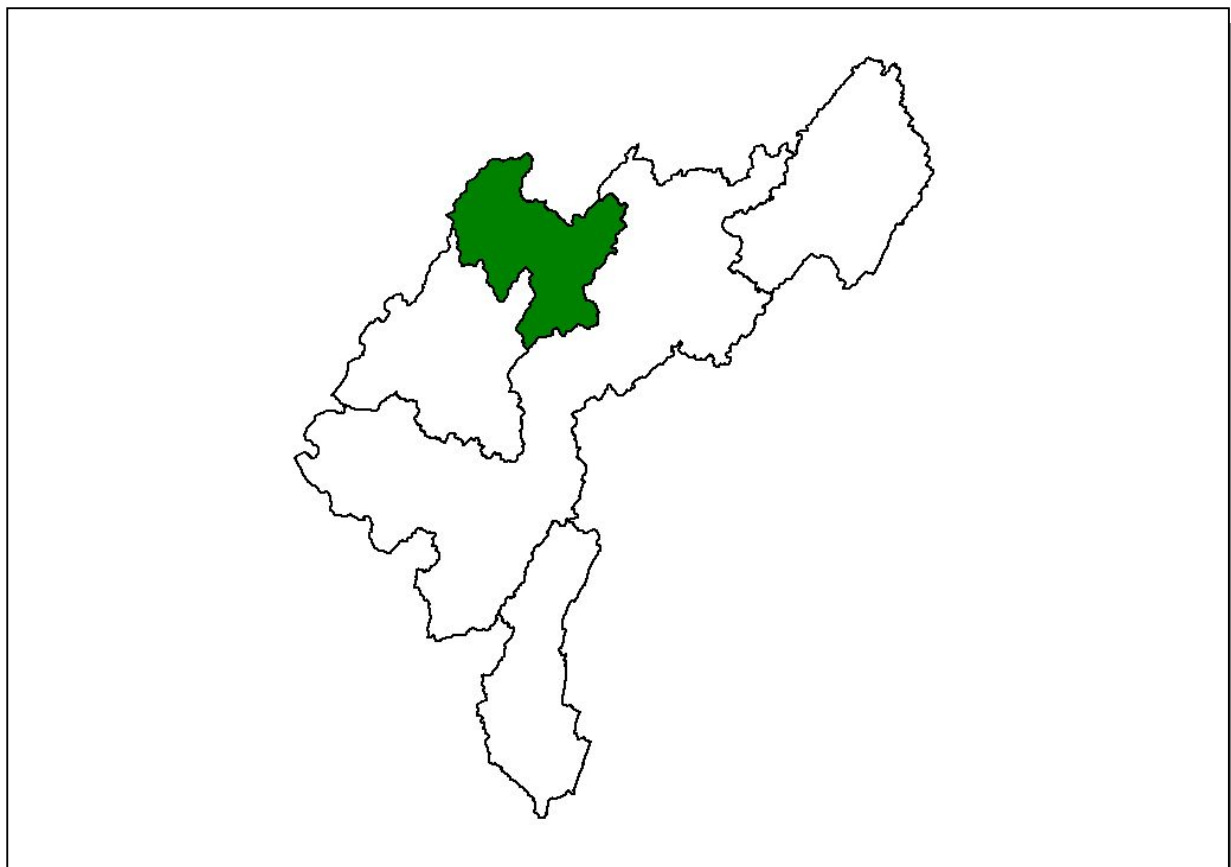


Figure 4-23. Location of Subwatershed 0602000103. All Lower Tennessee HUC-10 subwatershed boundaries are shown for reference.

4.2.C.i. General Description.

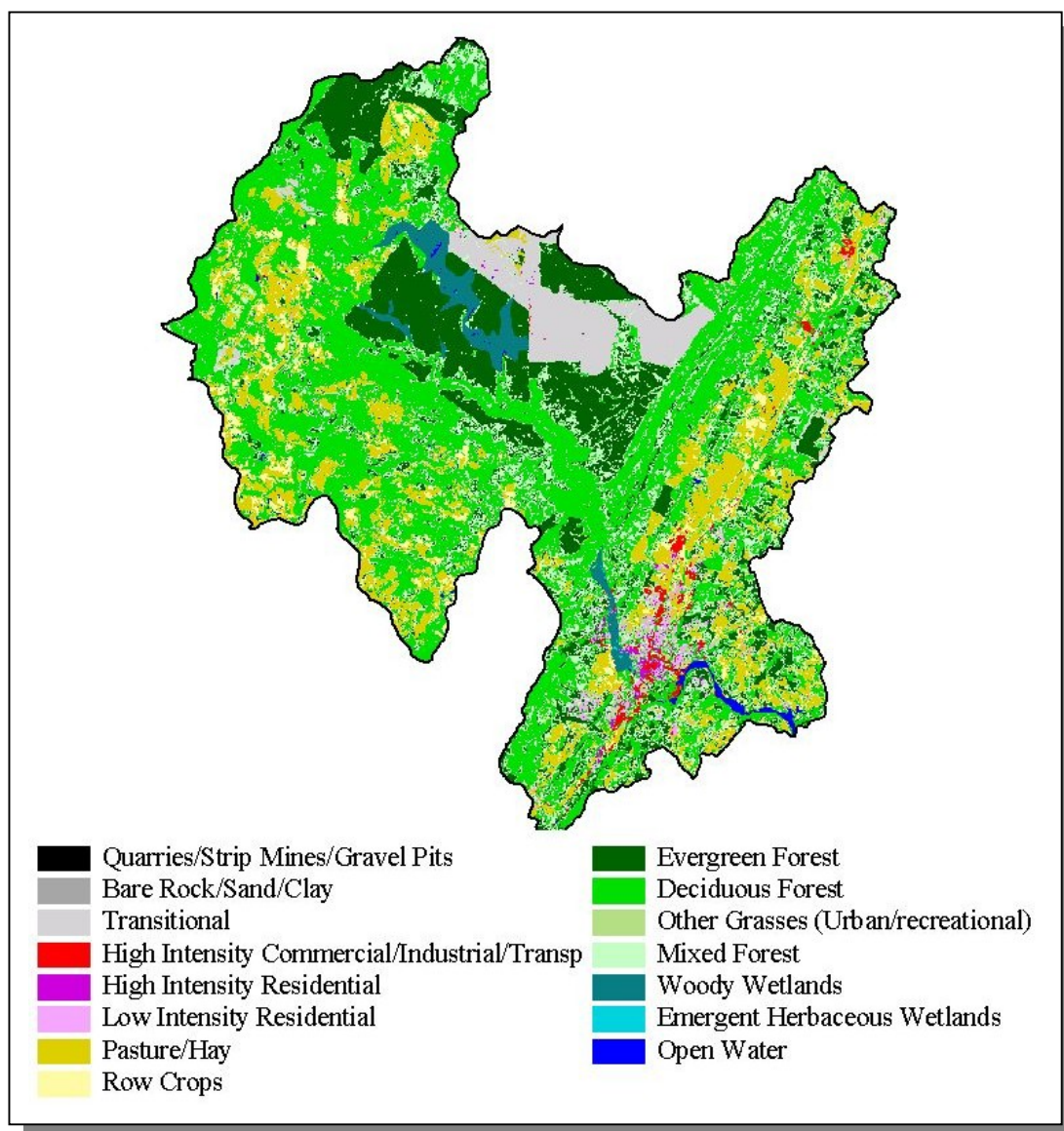


Figure 4-24. Illustration of Land Use Distribution in Subwatershed 0602000103.

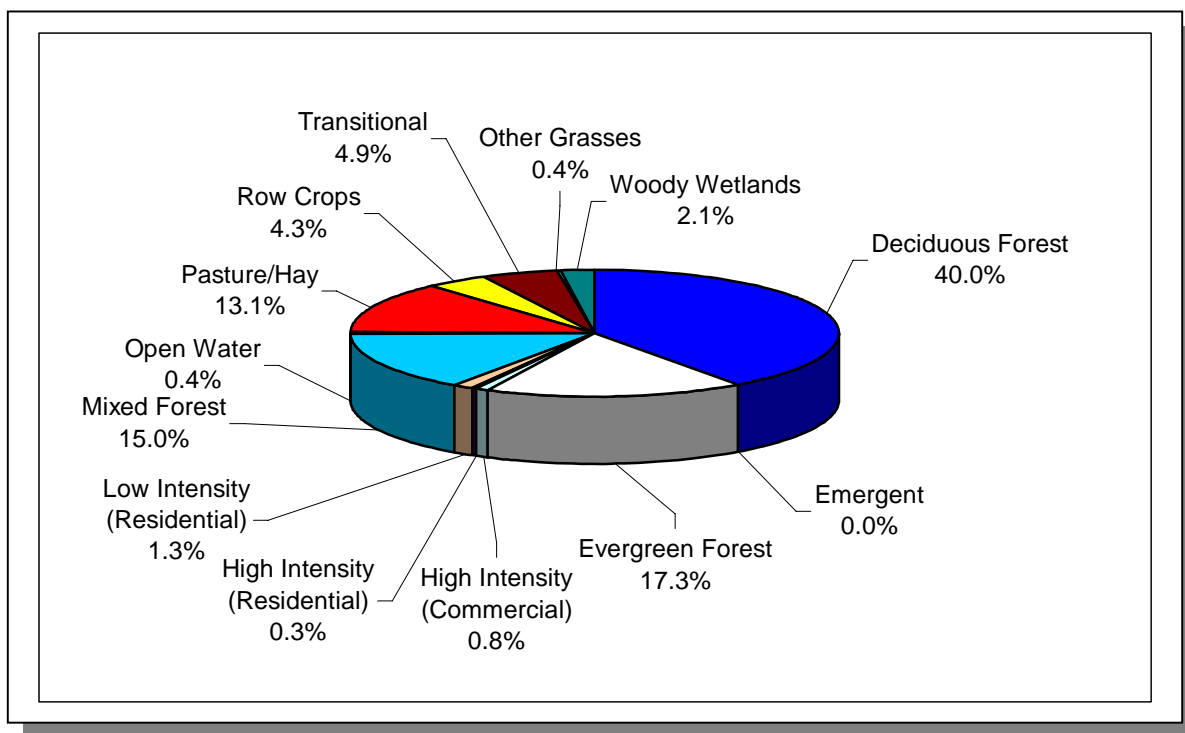


Figure 4-25. Land Use Distribution in Subwatershed 0602000103. More information is provided in Appendix IV.

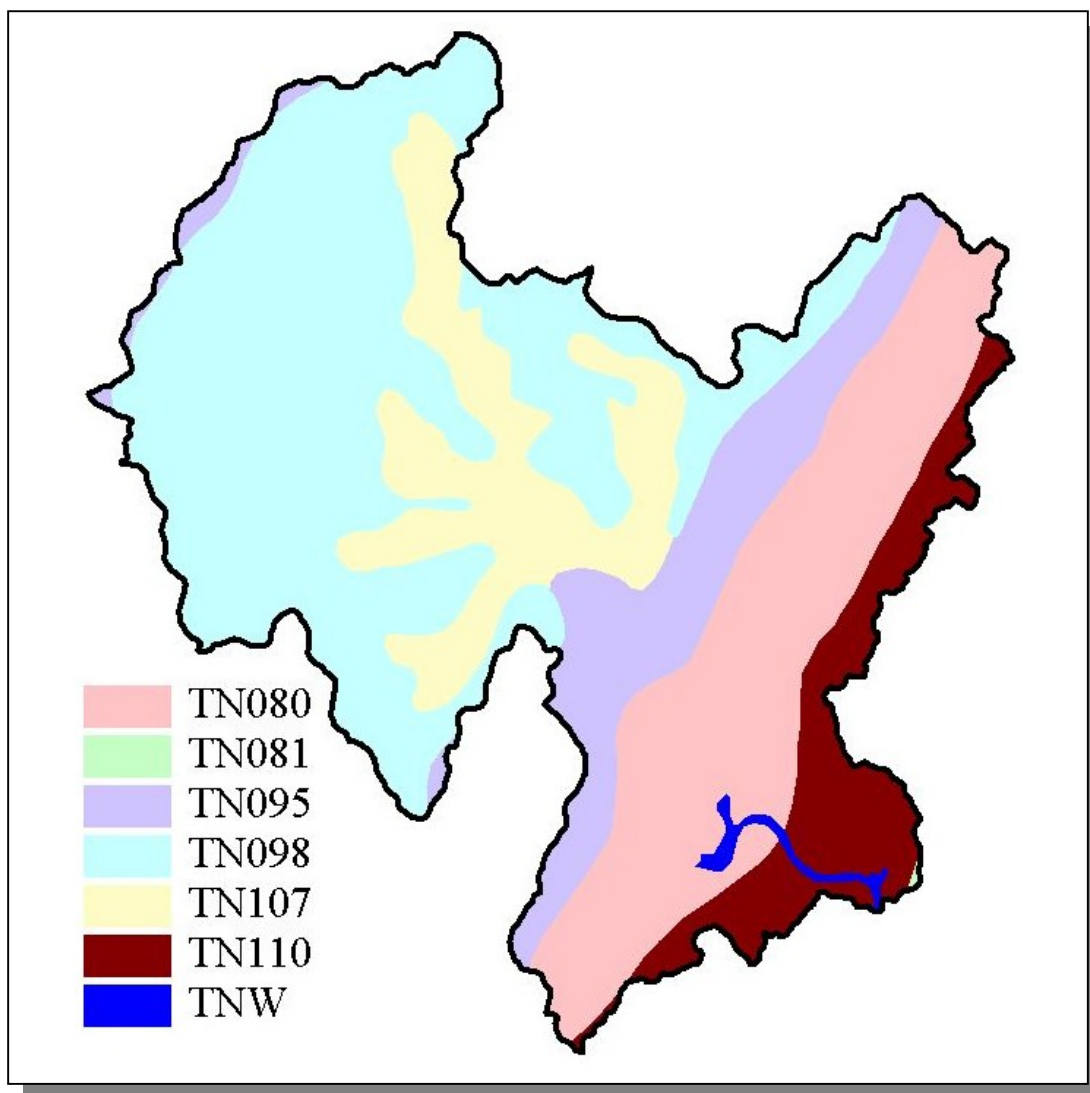


Figure 4-26. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000103.

| STATSGO MAP UNIT ID | PERCENT HYDRIC | HYDROLOGIC GROUP | PERMEABILITY (in/hour) | SOIL pH | ESTIMATED SOIL TEXTURE | SOIL ERODIBILITY |
|------------------------|-------------------|---------------------|---------------------------|------------|---------------------------|---------------------|
| TN080 | 1.00 | C | 1.38 | 5.16 | Loam | 0.35 |
| TN081 | 5.00 | C | 1.41 | 5.48 | Silty Loam | 0.35 |
| TN095 | 0.00 | B | 2.35 | 5.12 | Loam | 0.31 |
| TN098 | 1.00 | C | 3.98 | 4.82 | Loam | 0.32 |
| TN107 | 1.00 | C | 6.34 | 4.84 | Loam | 0.28 |
| TN110 | 0.00 | B | 2.22 | 4.96 | Loam | 0.31 |

Table 4-16. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000103. More information is provided in Lower Tennessee Appendix IV.

| County | COUNTY POPULATION | | | Portion of Watershed (%) | ESTIMATED POPULATION IN WATERSHED | | | % Change (1990-1997) |
|---------------|-------------------|---------------|---------------|--------------------------|-----------------------------------|--------------|--------------|----------------------|
| | 1990 | 1997 | 2000 | | 1990 | 1997 | 2000 | |
| Bledsoe | 9,669 | 10,650 | 12,367 | 4.21 | 407 | 448 | 520 | 27.8 |
| Rhea | 24,344 | 27,672 | 28,400 | 19.04 | 4,635 | 5,268 | 5,407 | 16.7 |
| Totals | 34,013 | 38,322 | 40,767 | | 5,042 | 5,716 | 5,927 | 17.6 |

Table 4-17. Population Estimates in Subwatershed 0602000103.

| Populated Place | County | Population | Total | NUMBER OF HOUSING UNITS | | |
|-----------------|--------|------------|-------|-------------------------|-------------|-------|
| | | | | Public Sewer | Septic Tank | Other |
| Dayton | Rhea | 5,671 | 2,306 | 1,710 | 596 | 0 |

Table 4-18. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0602000103.

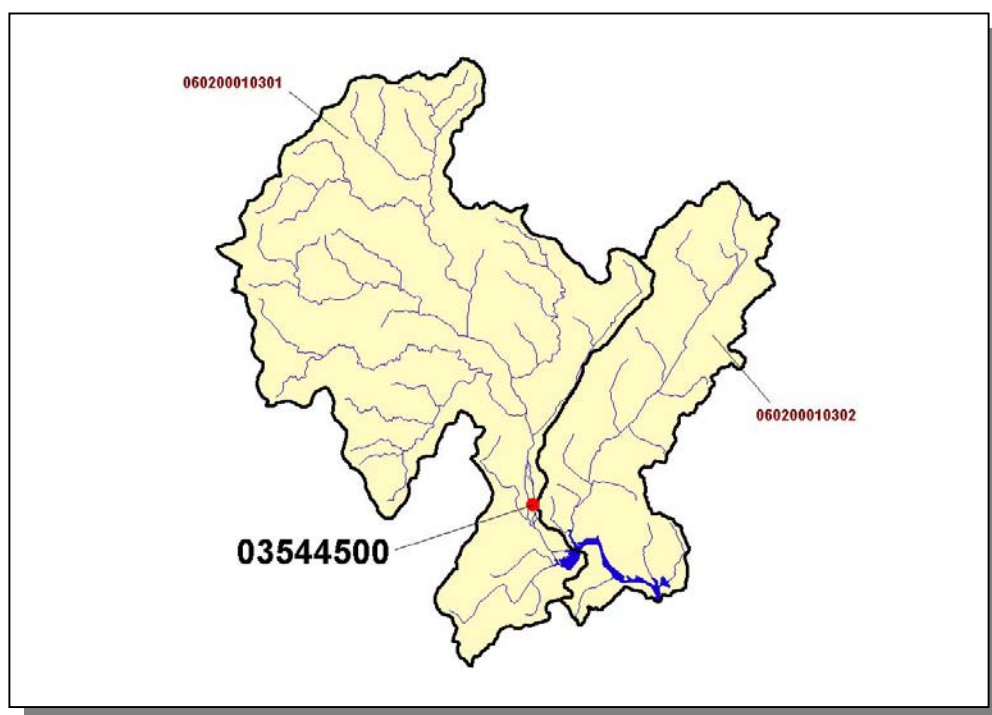


Figure 4-27. Location of Historical Streamflow Data Collection Sites in Subwatershed 0602000103. Subwatershed 060200010301 and 060200010302 boundaries are shown for reference. More information is provided in Appendix IV.

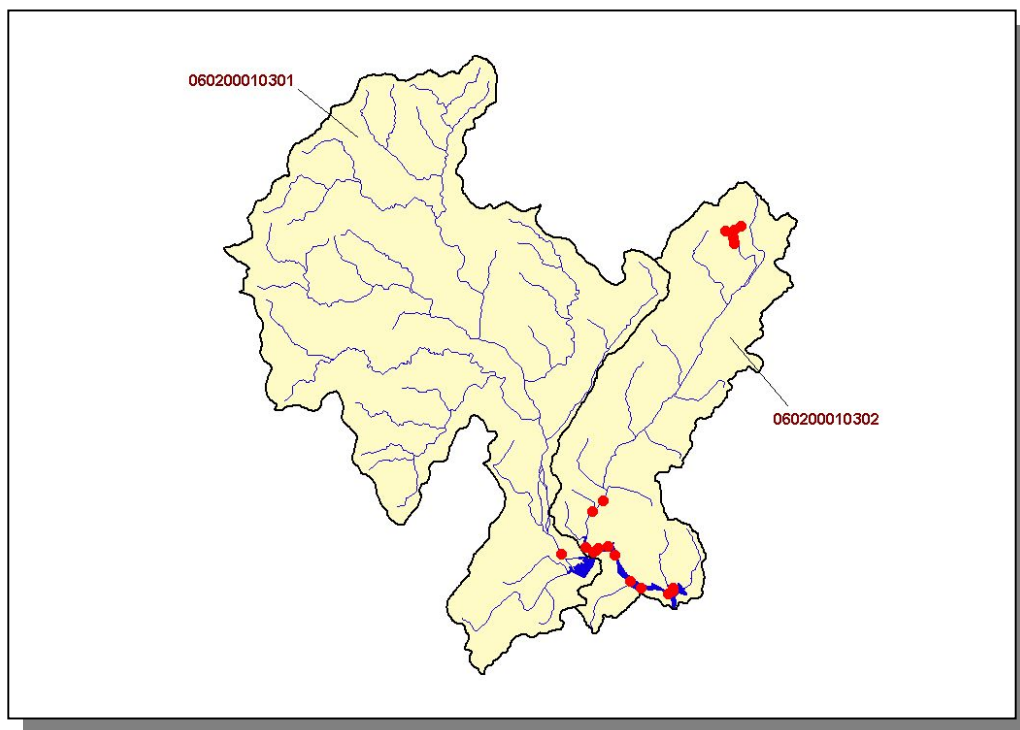


Figure 4-28. Location of STORET Monitoring Sites in Subwatershed 0602000103. Subwatershed 060200010301 and 060200010302 boundaries are shown for reference. More information, including site names and locations, is provided in Appendix IV.

4.2.C.ii. Point Source Contributions.

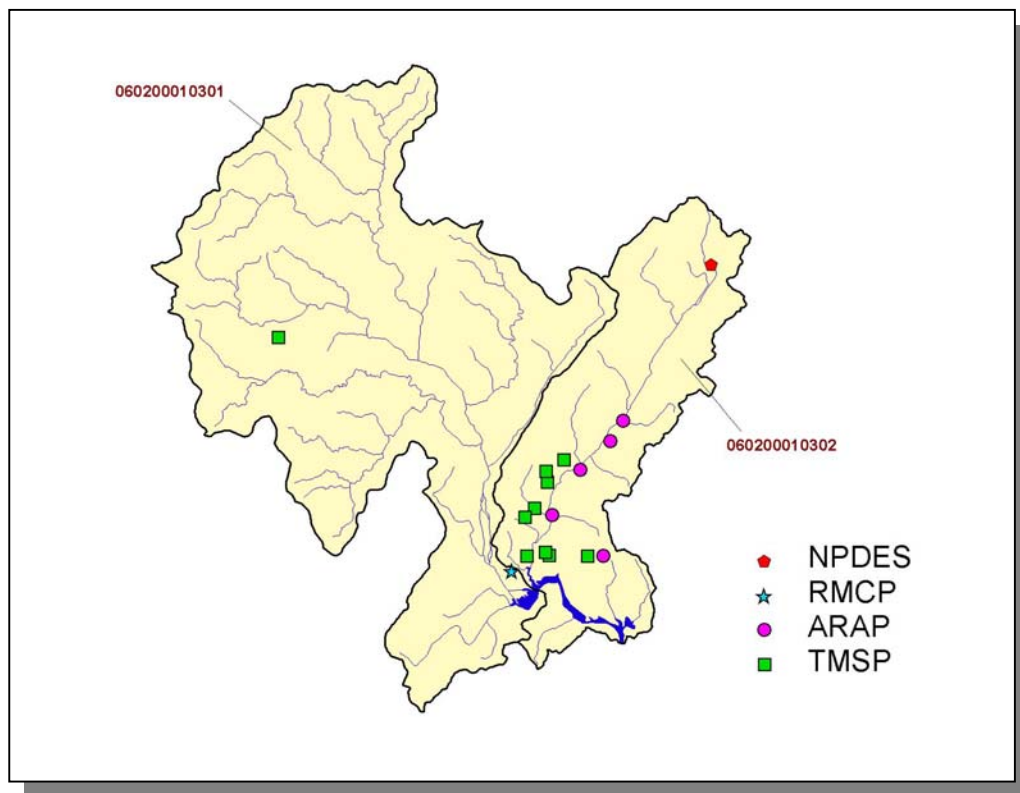


Figure 4-29. Location of Active Point Source Facilities in Subwatershed 0602000103. Subwatershed 060200010301 and 060200010302 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

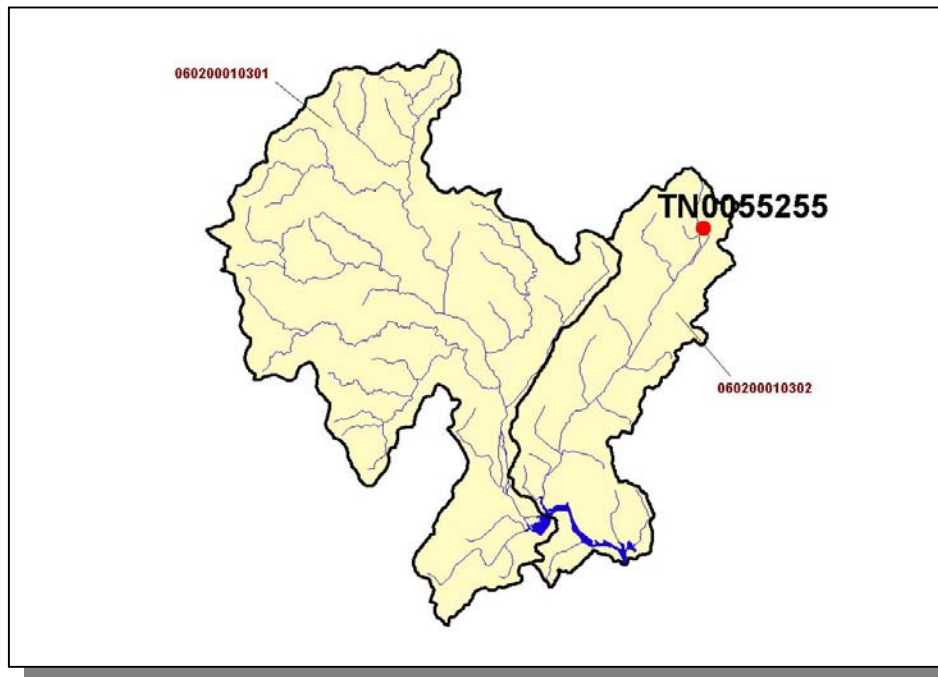


Figure 4-30. Location of NPDES Facilities in Subwatershed 0602000103. Subwatershed 060200010301 and 060200010302 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

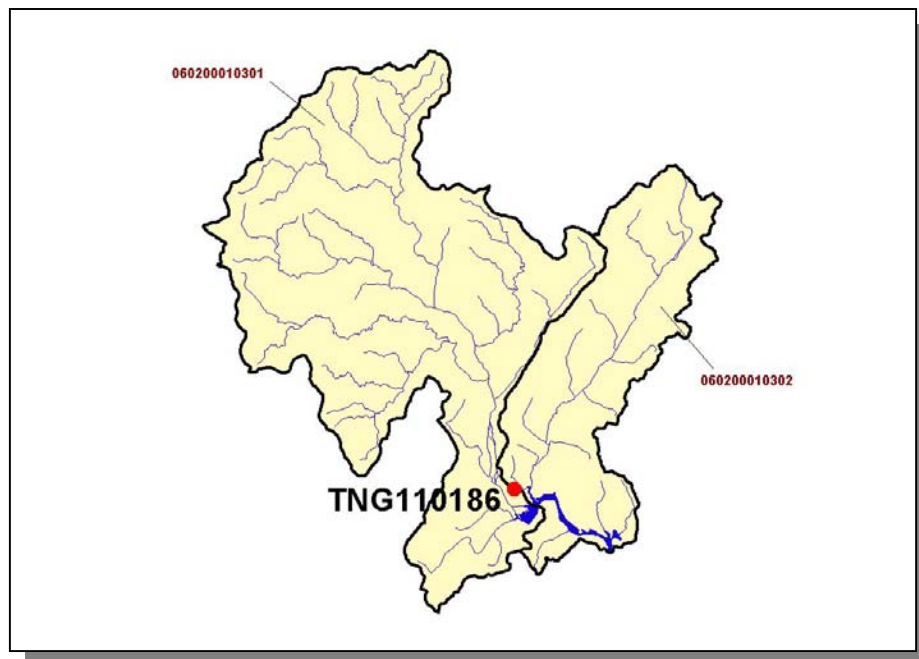


Figure 4-31. Location of Ready Mix Concrete Plants in Subwatershed 0602000103. Subwatershed 060200010301 and 060200010302 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

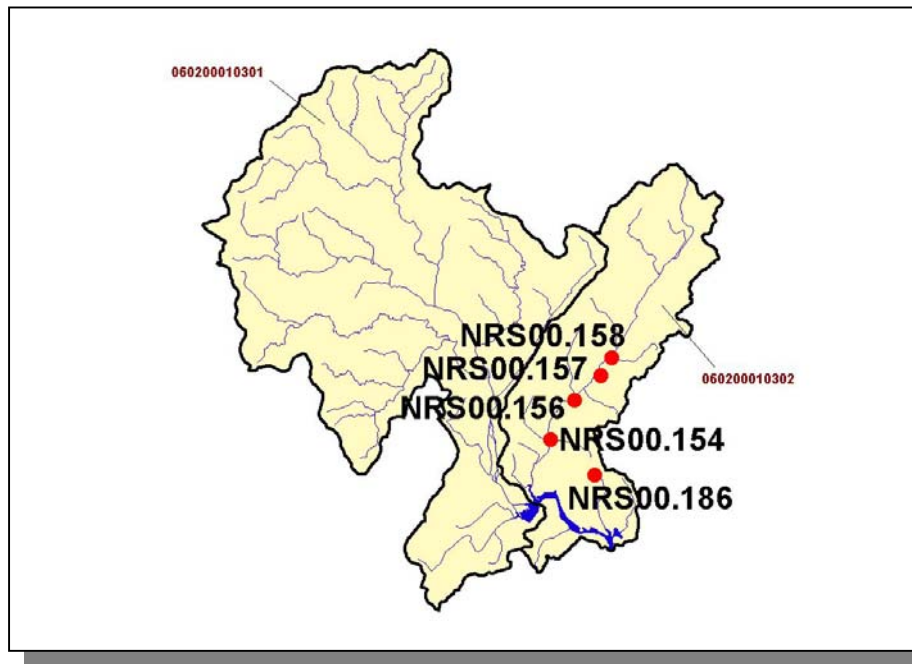


Figure 4-32. Location of ARAP Sites (Individual Permits) in Subwatershed 0602000103. Subwatershed 060200010301 and 060200010302 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

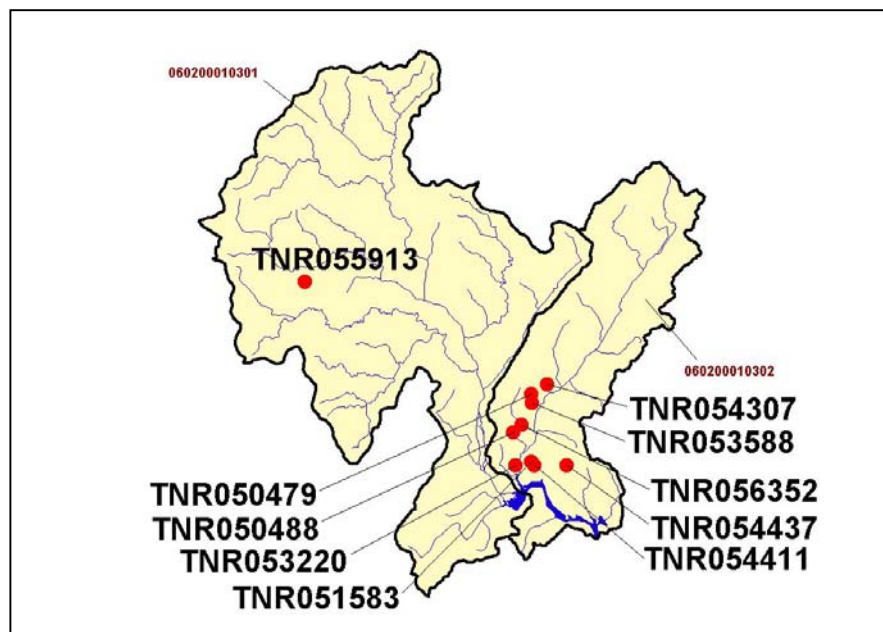


Figure 4-33. Location of TMSP Facilities in Subwatershed 0602000103. Subwatershed 060200010301 and 060200010302 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

4.2.C.iii. Nonpoint Source Contributions.

| LIVESTOCK (COUNTS) | | | | | | |
|---------------------------|--------|----------|-------------------|---------------|------|-------|
| Beef Cow | Cattle | Milk Cow | Chickens (Layers) | Chickens Sold | Hogs | Sheep |
| 1,459 | 3,239 | 187 | 5 | <5 | 151 | 8 |

Table 4-19. Summary of Livestock Count Estimates in Subwatershed 0602000103.
According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

| County | INVENTORY | | REMOVAL RATE | |
|---------------|---------------------------------|---------------------------------|---------------------------------------|-----------------------------------|
| | Forest Land (thousand acres) | Timber Land (thousand acres) | Growing Stock (million cubic feet) | Sawtimber (million board feet) |
| Bledsoe | 186.2 | 186.2 | 0.9 | 2.3 |
| Rhea | 126.5 | 126.4 | 1.7 | 4.7 |
| Totals | 312.7 | 312.6 | 2.6 | 7.0 |

Table 4-20. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0602000103.

| CROPS | TONS/ACRE/YEAR |
|---------------------------------------|-----------------------|
| Grass (Pastureland) | 0.49 |
| Grass (Hayland) | 0.17 |
| Legumes, Grass (Hayland) | 0.30 |
| Grass, Forbs, Legumes (Mixed Pasture) | 0.31 |
| Forest Land (Not Grazed) | 0.00 |
| Forest Land (Grazed) | 0.00 |
| Corn (Row Crops) | 2.83 |
| Soybeans (Row Crops) | 4.23 |
| All Other Row Crops | 4.45 |
| Wheat (Close-Grown Cropland) | 7.30 |
| Conservation Reserve Program Lands | 1.00 |
| Farmsteads and Ranch Headquarters | 0.41 |

Table 4-21. Annual Estimated Total Soil Loss in Subwatershed 0602000103.

4.2.D. 0602000104 (Sale Creek).

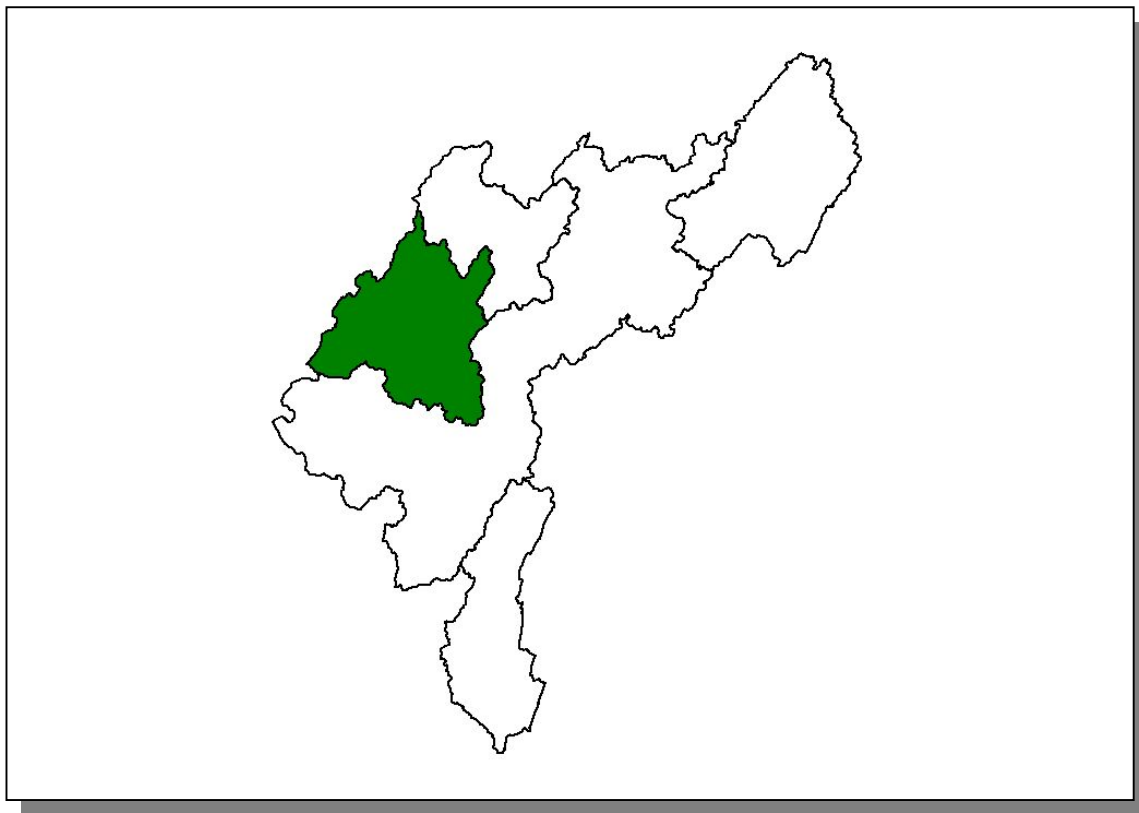


Figure 4-34. Location of Subwatershed 0602000104. All Lower Tennessee HUC-10 subwatershed boundaries are shown for reference.

4.2.D.i. General Description.

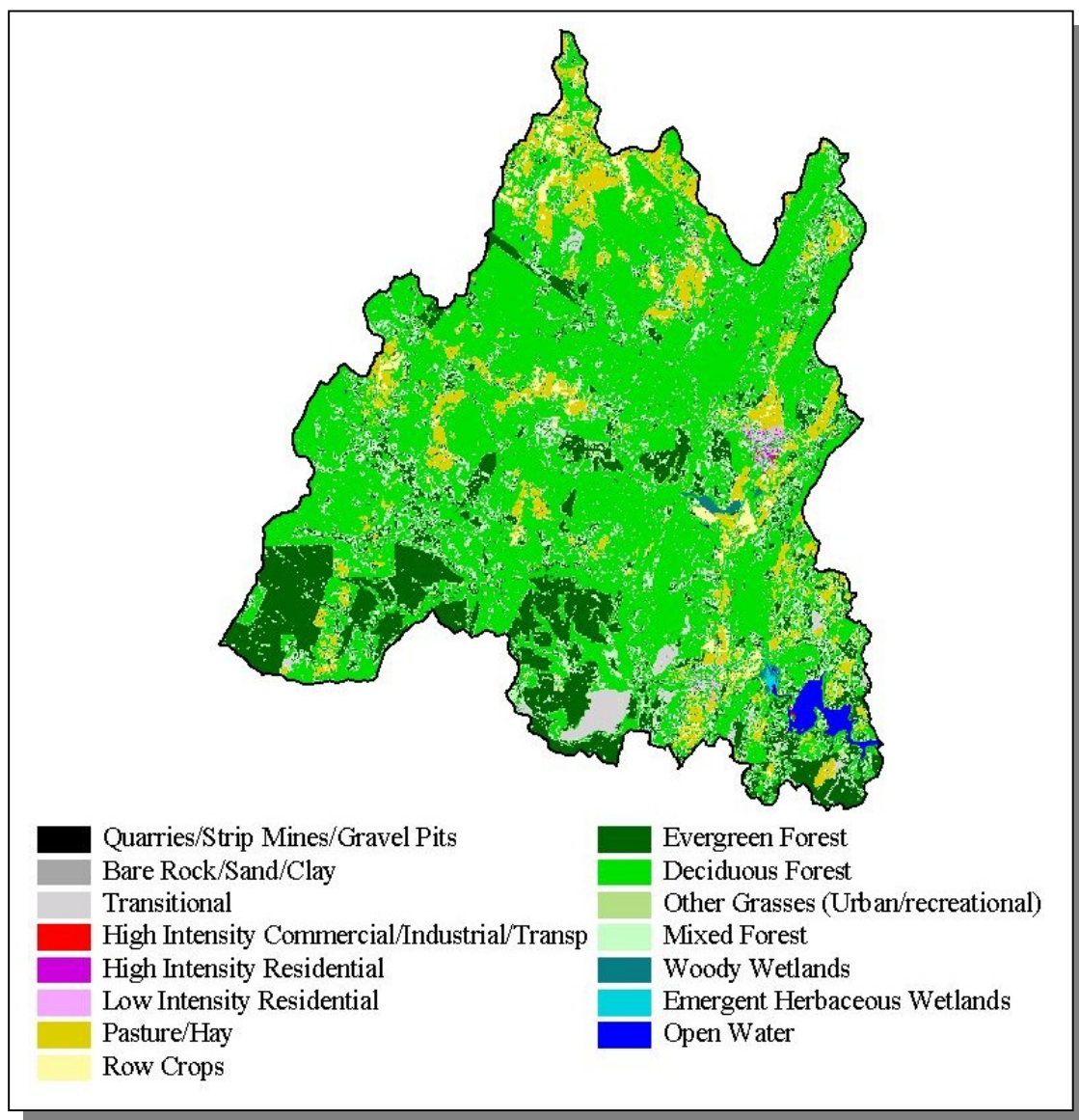


Figure 4-35. Illustration of Land Use Distribution in Subwatershed 0602000104.

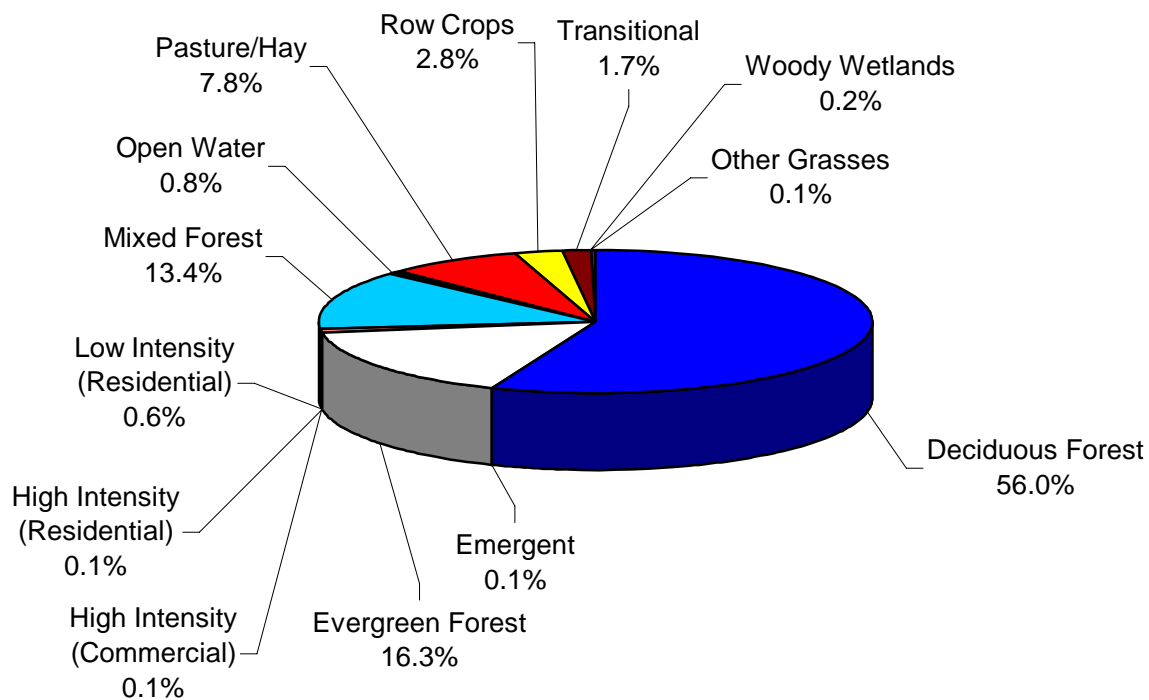


Figure 4-36. Land Use Distribution in Subwatershed 0602000104. More information is provided in Appendix IV.

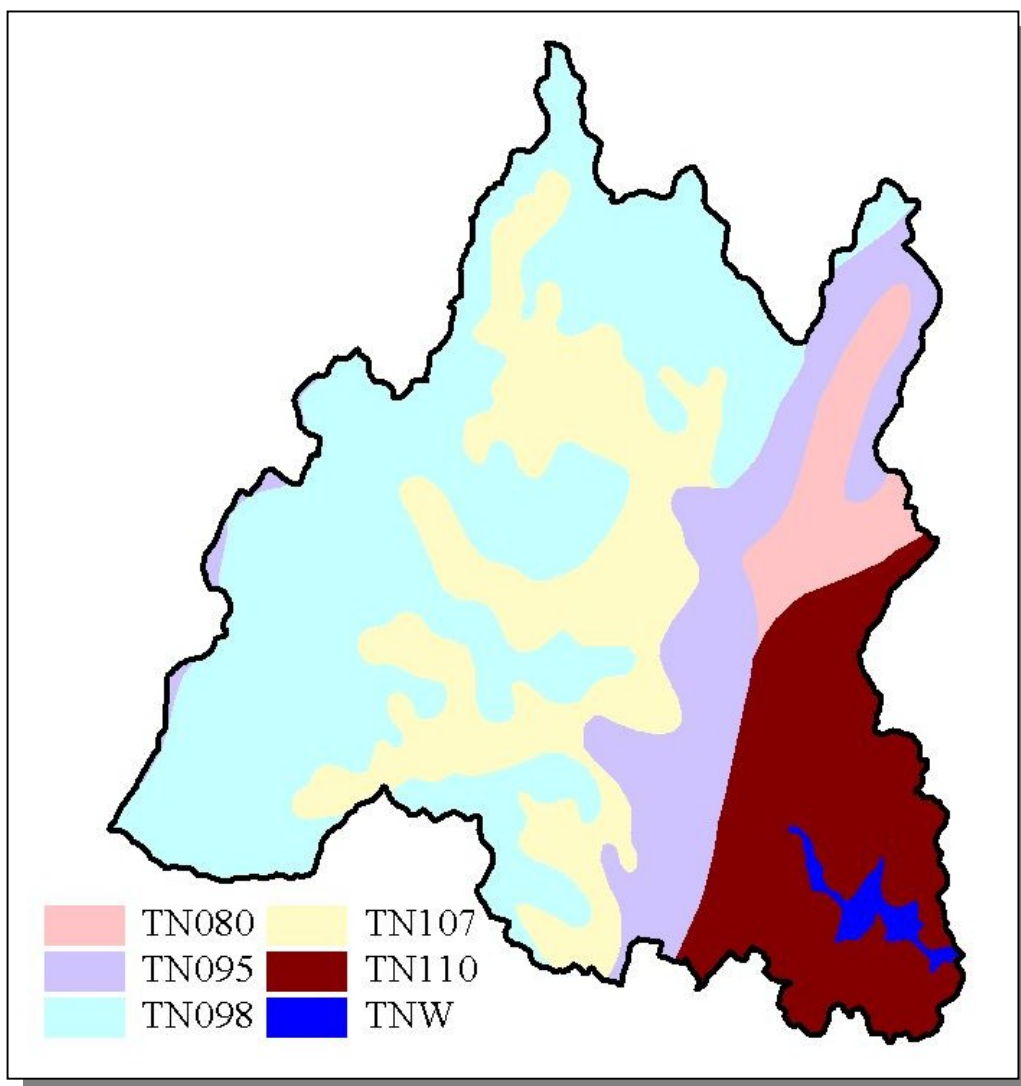


Figure 4-37. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000104.

| STATSGO MAP UNIT ID | PERCENT HYDRIC | HYDROLOGIC GROUP | PERMEABILITY (in/hour) | SOIL pH | ESTIMATED SOIL TEXTURE | SOIL ERODIBILITY |
|------------------------|-------------------|---------------------|---------------------------|------------|---------------------------|---------------------|
| TN080 | 1.00 | C | 1.38 | 5.16 | Loam | 0.35 |
| TN095 | 0.00 | B | 2.35 | 5.12 | Loam | 0.31 |
| TN098 | 1.00 | C | 3.98 | 4.82 | Loam | 0.32 |
| TN107 | 1.00 | C | 6.34 | 4.84 | Loam | 0.28 |
| TN110 | 0.00 | B | 2.22 | 4.96 | Loam | 0.31 |

Table 4-22. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000104. More information is provided in Appendix IV.

| County | COUNTY POPULATION | | | Portion of Watershed (%) | ESTIMATED POPULATION IN WATERSHED | | | % Change (1990-1997) |
|---------------|-------------------|----------------|----------------|--------------------------|-----------------------------------|---------------|---------------|----------------------|
| | 1990 | 1997 | 2000 | | 1990 | 1997 | 2000 | |
| Bledsoe | 9,669 | 10,650 | 12,367 | 11.08 | 1,071 | 1,180 | 1,370 | 27.9 |
| Hamilton | 285,536 | 294,865 | 307,896 | 7.67 | 21,886 | 22,601 | 23,600 | 7.8 |
| Rhea | 24,344 | 27,672 | 28,400 | 7.28 | 1,773 | 2,015 | 2,068 | 16.6 |
| Totals | 319,549 | 333,187 | 348,663 | | 24,730 | 25,796 | 27,038 | 9.3 |

Table 4-23. Population Estimates in Subwatershed 0602000104.

| Populated Place | County | Population | NUMBER OF HOUSING UNITS | | | |
|-----------------|--------|------------|-------------------------|--------------|-------------|-------|
| | | | Total | Public Sewer | Septic Tank | Other |
| Graysville | Rhea | 1,301 | 532 | 75 | 453 | 4 |

Table 4-24. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0602000104.

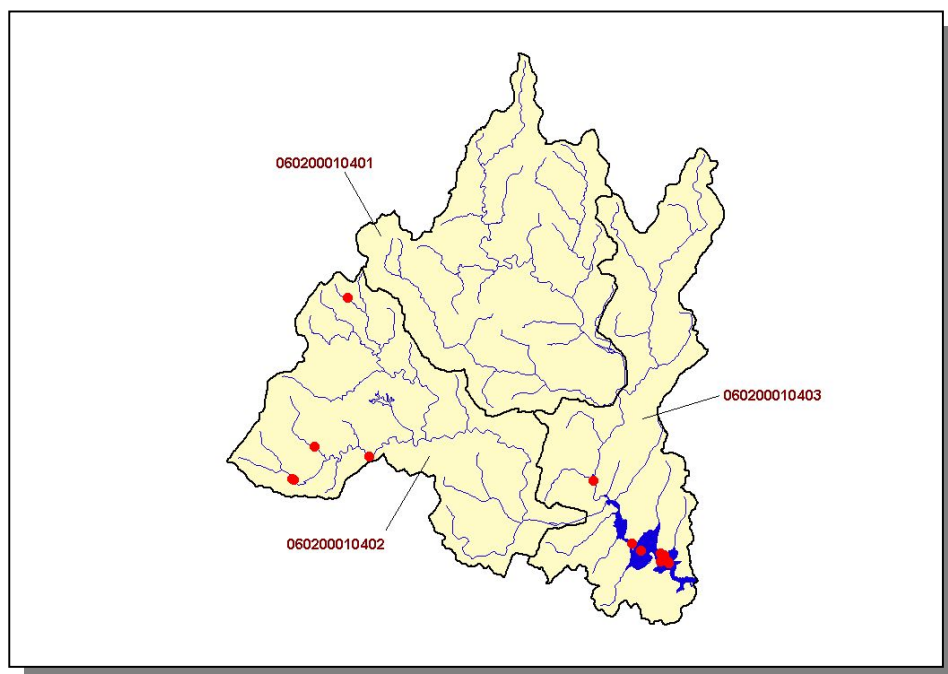


Figure 4-38. Location of STORET Monitoring Sites in Subwatershed 0602000104. Subwatershed 060200010401, 060200010402, and 060200010403 boundaries are shown for reference. More information, including site names and locations, is provided in Appendix IV.

4.2.D.ii. Point Source Contributions.

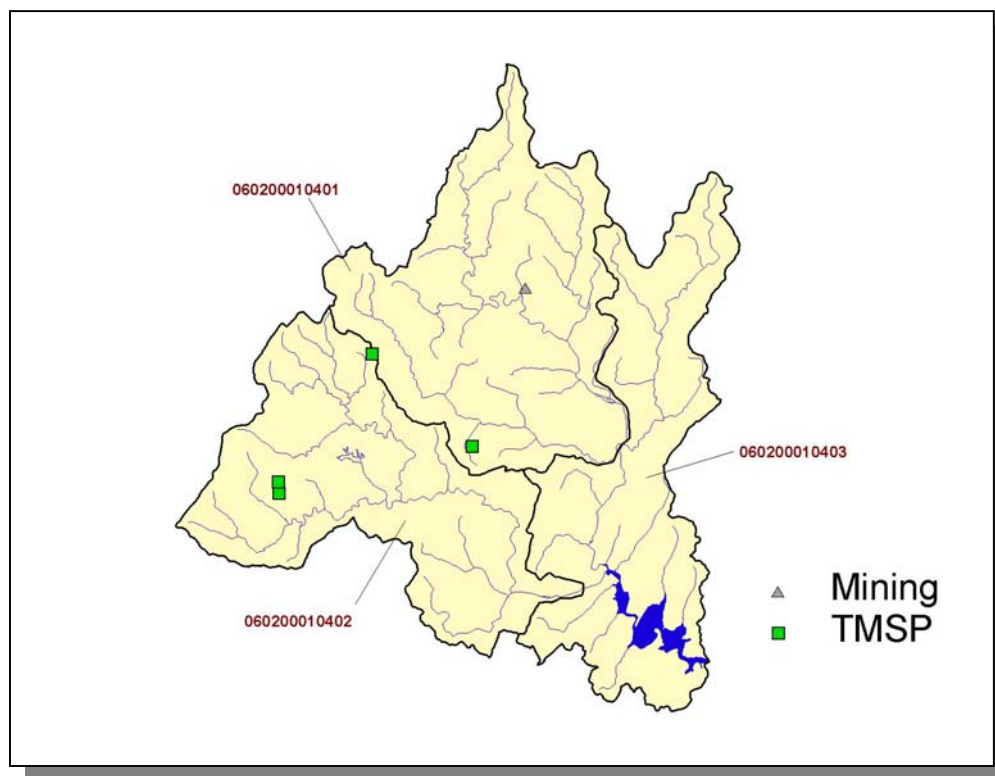


Figure 4-39. Location of Active Point Source Facilities in Subwatershed 0602000104. Subwatershed 060200010401, 060200010402, and 060200010403 boundaries are shown for reference. More information is provided in Appendix IV.

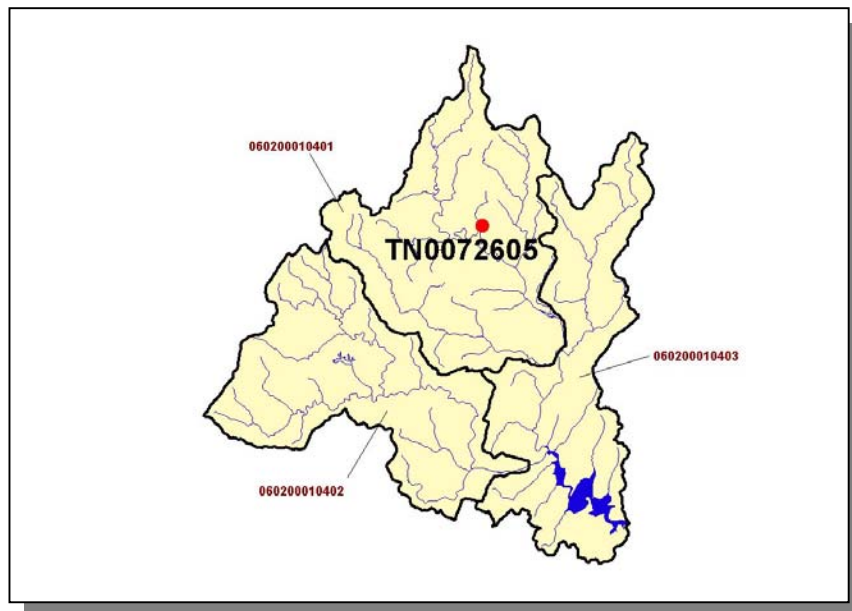


Figure 4-40. Location of Active Mining Facilities in Subwatershed 0602000104. Subwatershed 060200010401, 060200010402, and 060200010403 boundaries are shown for reference. More information is provided in Appendix IV.

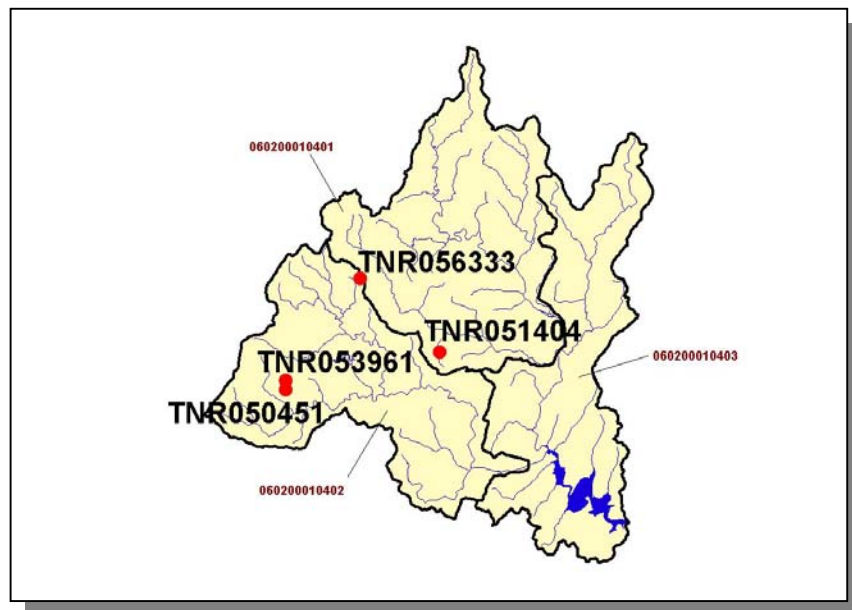


Figure 4-41. Location of TMSP Facilities in Subwatershed 0602000104. Subwatershed 060200010401, 060200010402, and 060200010403 boundaries are shown for reference. More information is provided in Appendix IV.

4.2.D.iii. Nonpoint Source Contributions.

| LIVESTOCK (COUNTS) | | | | | | |
|---------------------------|----------|--------|-------------------|--------------------------|------|-------|
| Beef Cow | Milk Cow | Cattle | Chickens (Layers) | Chickens (Broilers Sold) | Hogs | Sheep |
| 1,400 | 174 | 3,038 | <5 | 44,952 | 114 | 16 |

Table 4-25. Summary of Livestock Count Estimates in Subwatershed 0602000104.
According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

| County | INVENTORY | | REMOVAL RATE | |
|--------------|---------------------------------|---------------------------------|---------------------------------------|-----------------------------------|
| | Forest Land (thousand acres) | Timber Land (thousand acres) | Growing Stock (million cubic feet) | Sawtimber (million board feet) |
| Bledsoe | 186.2 | 186.2 | 0.9 | 2.3 |
| Hamilton | 210.7 | 210.7 | 2.2 | 6.0 |
| Rhea | 126.5 | 126.4 | 1.7 | 4.7 |
| Total | 523.4 | 523.3 | 4.8 | 13.0 |

Table 4-26. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0602000104.

| CROPS | TONS/ACRE/YEAR |
|---------------------------------------|-----------------------|
| Grass (Pastureland) | 0.49 |
| Legumes (Pastureland) | 0.07 |
| Grass (Hayland) | 1.25 |
| Legumes, Grass (Hayland) | 0.55 |
| Grass, Forbs, Legumes (Mixed Pasture) | 0.37 |
| Forest Land (Not Grazed) | 0.00 |
| Forest Land (Grazed) | 0.00 |
| Corn (Row Crops) | 6.61 |
| Soybeans (Row Crops) | 4.57 |
| All Other Row Crops | 4.45 |
| Oats (Close-Grown Cropland) | 3.13 |
| Wheat (Close-Grown Cropland) | 4.16 |
| All Other Close-Grown Cropland) | 1.99 |
| Non-Agricultural Land Use | 0.00 |
| Conservation Reserve Program Lands | 1.00 |
| Other Land in Farms | 0.00 |
| Farmsteads and Ranch Headquarters | 0.55 |

Table 4-27. Annual Soil Loss in Subwatershed 0602000104.

4.2.E. 0602000106 (Wolftever Creek).

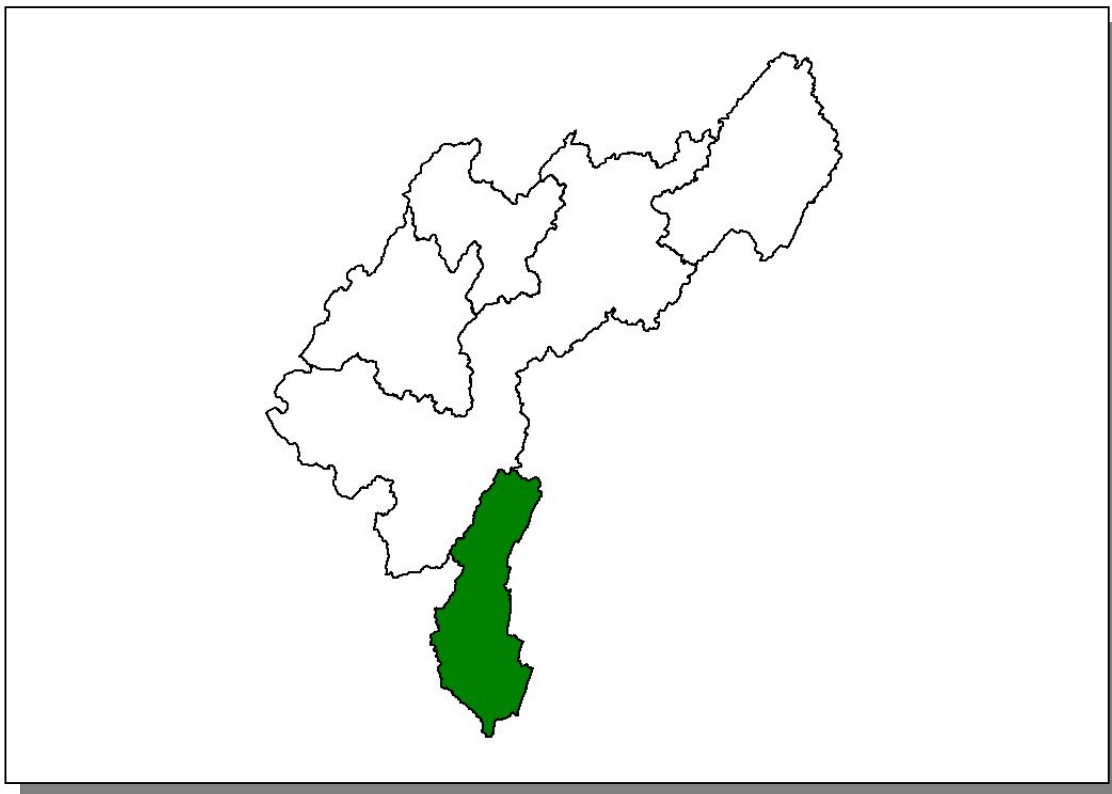


Figure 4-42. Location of Subwatershed 0602000106. All Lower Tennessee HUC-10 subwatershed boundaries are shown for reference.

4.2.E.i. General Description.

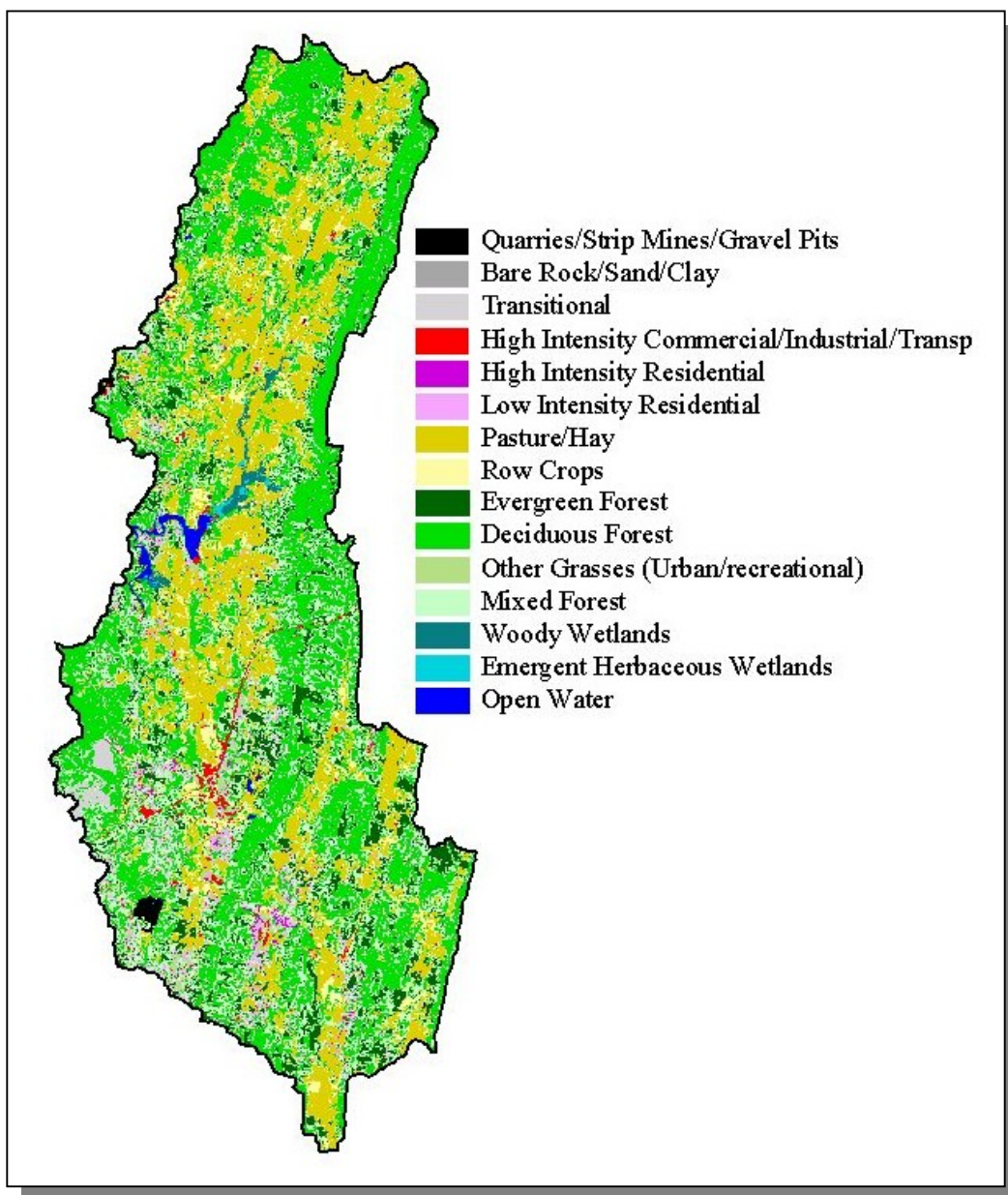


Figure 4-43. Illustration of Land Use Distribution in Subwatershed 0602000106.

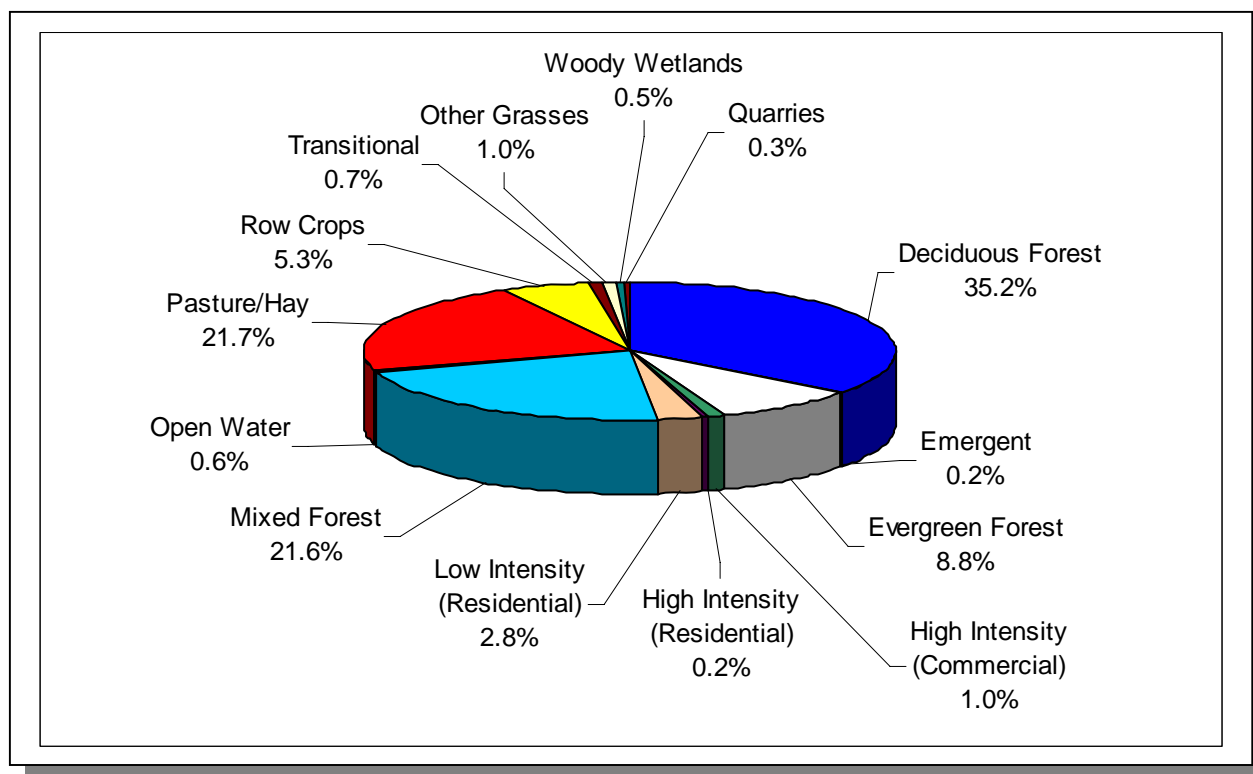


Figure 4-44. Land Use Distribution in Subwatershed 0602000106. More information is provided in Appendix IV.

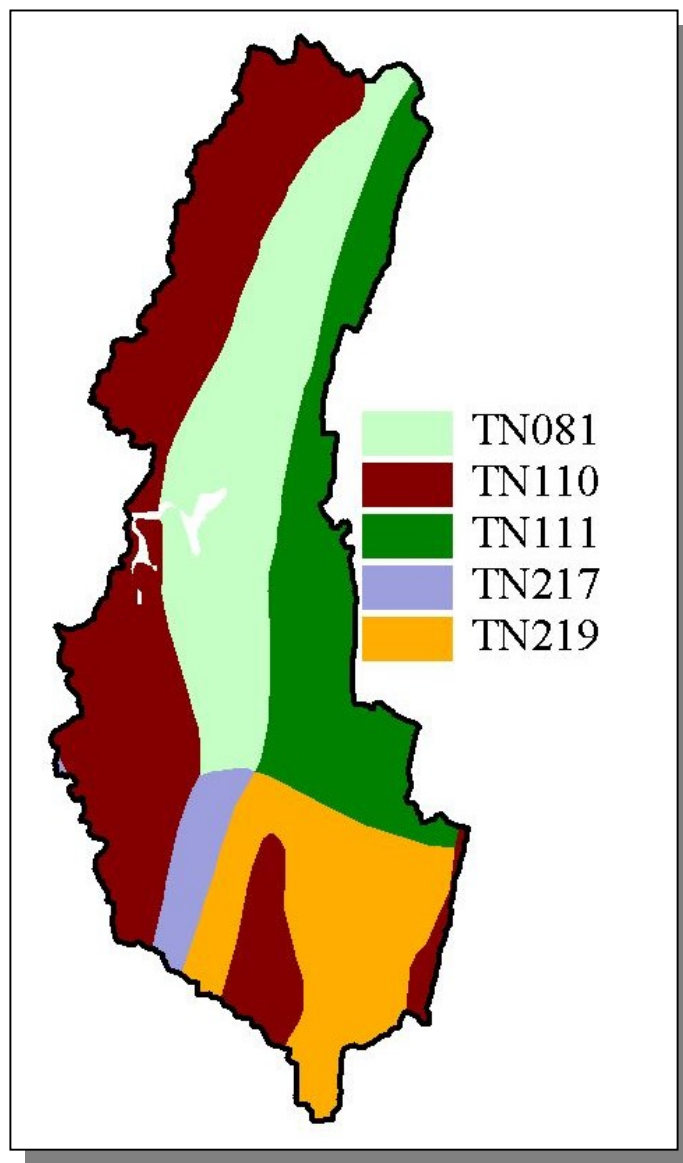


Figure 4-45. STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000106.

| STATSGO MAP UNIT ID | PERCENT HYDRIC | HYDROLOGIC GROUP | PERMEABILITY (in/hr) | SOIL pH | ESTIMATED SOIL TEXTURE | SOIL ERODIBILITY |
|------------------------|-------------------|---------------------|-------------------------|------------|---------------------------|---------------------|
| TN081 | 5.00 | C | 1.41 | 5.48 | Silty Loam | 0.35 |
| TN110 | 0.00 | B | 2.22 | 4.96 | Loam | 0.31 |
| TN111 | 0.00 | C | 1.41 | 5.10 | Loam | 0.34 |
| TN217 | 0.00 | C | 2.34 | 5.32 | Loam | 0.35 |
| TN219 | 0.00 | C | 1.35 | 4.95 | Loam | 0.33 |

Table 4-28. Soil Characteristics by STATSGO (State Soil Geographic Database) Soil Map Units in Subwatershed 0602000106. More information is provided in Appendix IV.

| County | COUNTY POPULATION | | | Portion of Watershed (%) | ESTIMATED POPULATION IN WATERSHED | | | % Change (1990-1997) |
|---------------|-------------------|----------------|----------------|--------------------------|-----------------------------------|---------------|---------------|----------------------|
| | 1990 | 1997 | 2000 | | 1990 | 1997 | 2000 | |
| Bradley | 73,712 | 80,800 | 87,965 | 1.11 | 815 | 893 | 972 | 19.3 |
| Hamilton | 285,536 | 294,865 | 307,896 | 14.85 | 42,388 | 43,773 | 45,708 | 7.8 |
| Totals | 359,248 | 375,665 | 395,861 | | 43,203 | 44,666 | 46,680 | 8.0 |

Table 4-29. Population Estimates in Subwatershed 0602000106.

| Populated Place | County | Population | NUMBER OF HOUSING UNITS | | | |
|-----------------|----------|------------|-------------------------|--------------|-------------|-------|
| | | | Total | Public Sewer | Septic Tank | Other |
| Collegedale | Hamilton | 5,048 | 1,641 | 681 | 917 | 43 |

Table 4-30. Housing and Sewage Disposal Practices of Select Communities in Subwatershed 0602000106.

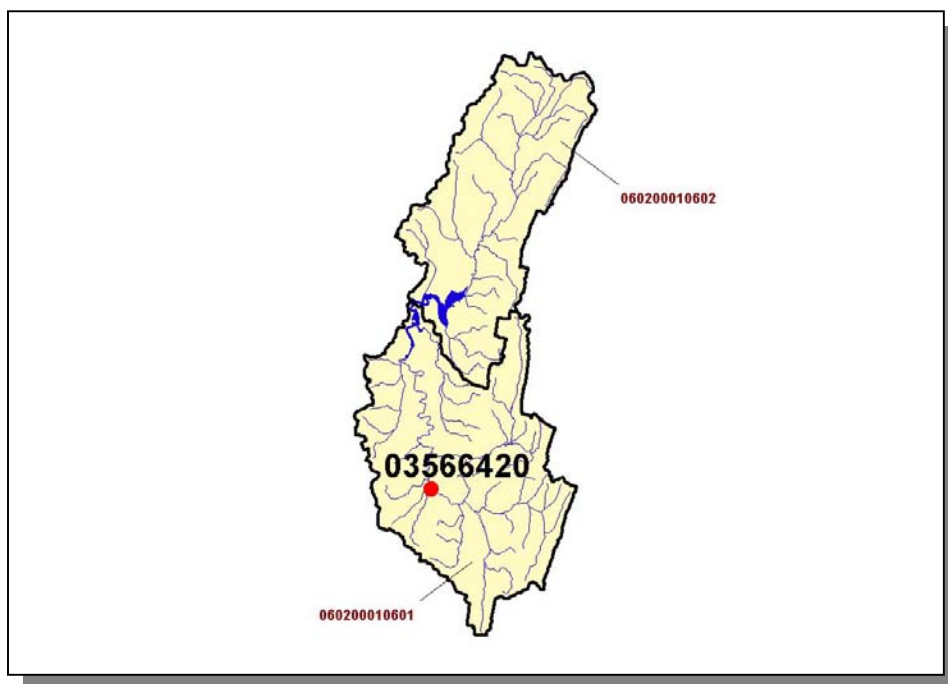


Figure 4-46. Location of Historical Streamflow Data Collection Sites in Subwatershed 0602000106. Subwatershed 060200010601 and 060200010602 boundaries are shown for reference. More information is provided in Appendix IV.

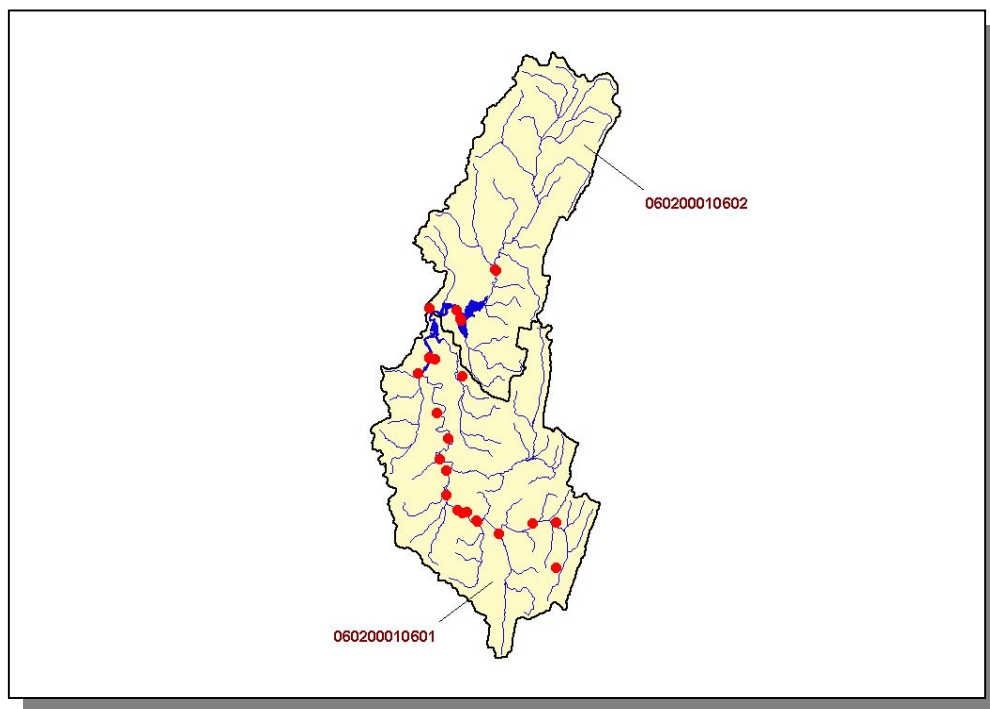


Figure 4-47. Location of STORET Monitoring Sites in Subwatershed 0602000106. Subwatershed 060200010601 and 060200010602 boundaries are shown for reference. More information, including site names and locations, is provided in Appendix IV.

4.2.E.ii. Point Source Contributions.

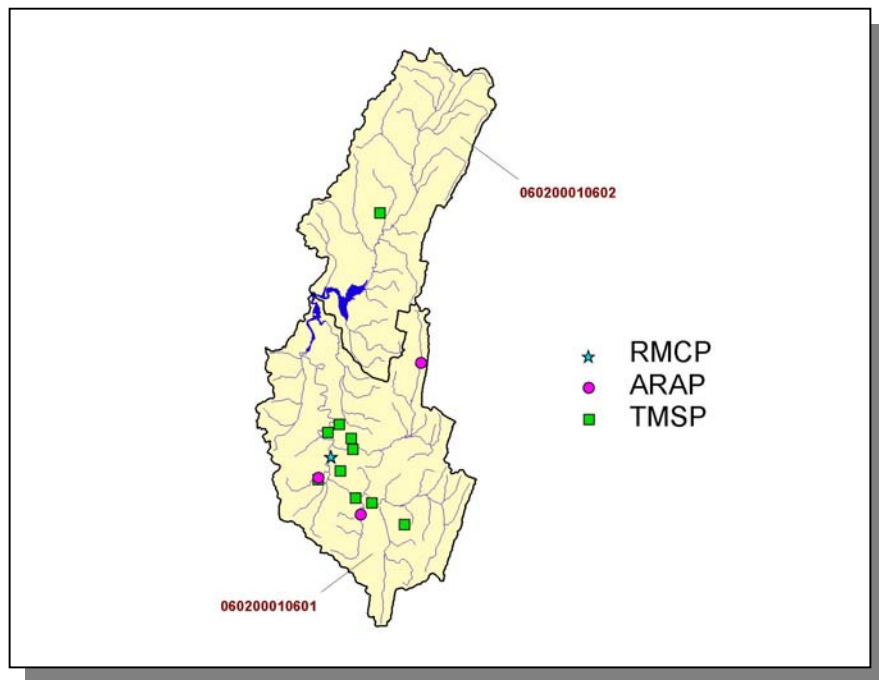


Figure 4-48. Location of Active Point Source Facilities in Subwatershed 0602000106. Subwatershed 060200010601 and 060200010602 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

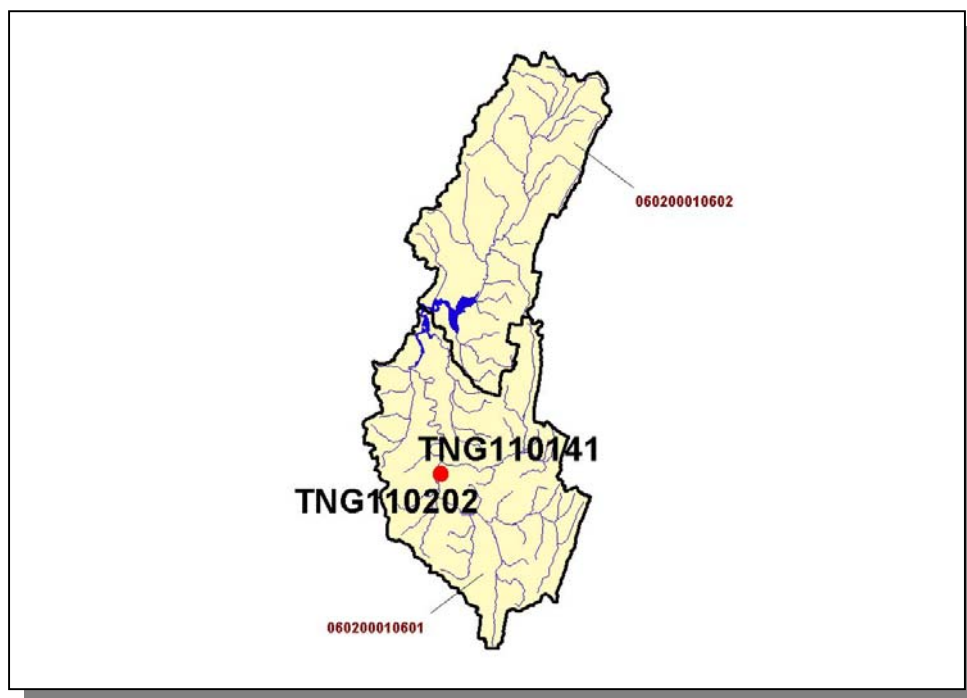


Figure 4-49. Location of Ready Mix Concrete Plants in Subwatershed 0602000106. Subwatershed 060200010601 and 060200010602 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

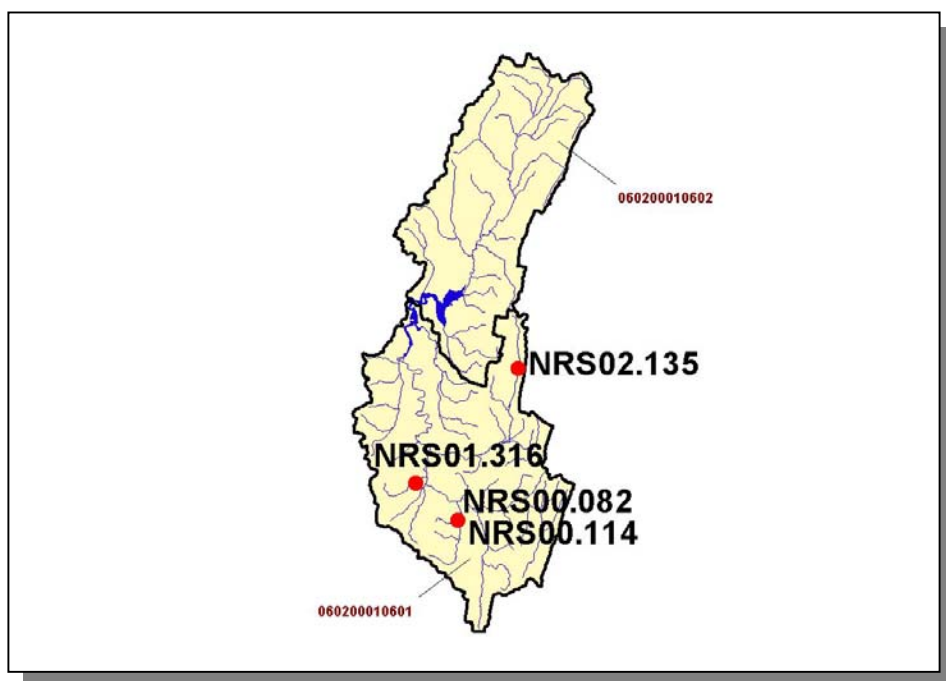


Figure 4-50. Location of ARAP Sites (Individual Permits) in Subwatershed 0602000106. Subwatershed 060200010601 and 060200010602 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

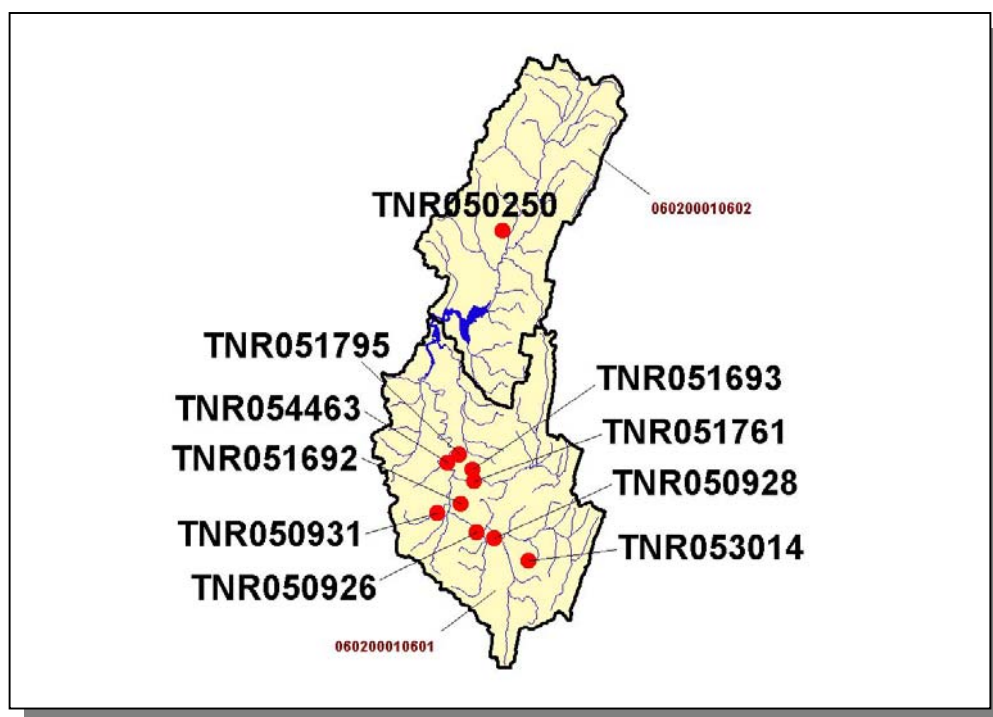


Figure 4-51. Location of TMSP Facilities in Subwatershed 0602000106. Subwatershed 060200010601 and 060200010602 boundaries are shown for reference. More information, including the names of facilities, is provided in Appendix IV.

4.2.E.iii. Nonpoint Source Contributions.

| LIVESTOCK (COUNTS) | | | | | | |
|---------------------------|----------|--------|-------------------|--------------------------|------|-------|
| Beef Cow | Milk Cow | Cattle | Chickens (Layers) | Chickens (Broilers Sold) | Hogs | Sheep |
| 2,648 | 322 | 5,687 | 11 | 487,912 | 382 | 42 |

Table 4-31. Summary of Livestock Count Estimates in Subwatershed 0602000106.
According to the 1997 Census of Agriculture (<http://www.nass.usda.gov/census/>), "Cattle" includes heifers, heifer calves, steers, bulls and bull calves; "Chickens" are layers 20 weeks and older; "Chickens Sold" are all chickens used to produce meat.

| County | INVENTORY | | REMOVAL RATE | |
|--------------|---------------------------------|---------------------------------|---------------------------------------|-----------------------------------|
| | Forest Land (thousand acres) | Timber Land (thousand acres) | Growing Stock (million cubic feet) | Sawtimber (million board feet) |
| Bradley | 92.5 | 92.5 | 8.2 | 18.1 |
| Hamilton | 210.7 | 210.7 | 2.2 | 6.0 |
| Total | 303.2 | 303.2 | 10.4 | 24.1 |

Table 4-32. Forest Acreage and Average Annual Removal Rates (1987-1994) in Subwatershed 0602000106.

| CROPS | TONS/ACRE/YEAR |
|---------------------------------------|-----------------------|
| Grass (Pastureland) | 0.34 |
| Legumes (Pastureland) | 0.07 |
| Grass (Hayland) | 2.25 |
| Legumes, Grass (Hayland) | 0.20 |
| Grass, Forbs, Legumes (Mixed Pasture) | 0.30 |
| Forest Land (Not Grazed) | 0.00 |
| Forest Land (Grazed) | 0.00 |
| Corn (Row Crops) | 5.28 |
| Soybeans (Row Crops) | 7.48 |
| Oats (Close-Grown Cropland) | 3.13 |
| Wheat (Close-Grown Cropland) | 3.14 |
| All Other Close-Grown Cropland) | 1.99 |
| Other Cropland Not Planted | 0.48 |
| Non-Agricultural Land Use | 0.00 |
| Conservation Reserve Program Lands | 0.27 |
| Other Land in Farms | 0.00 |
| Farmsteads and Ranch Headquarters | 0.15 |

Table 4-33. Annual Estimated Total Soil Loss in Subwatershed 0602000106.